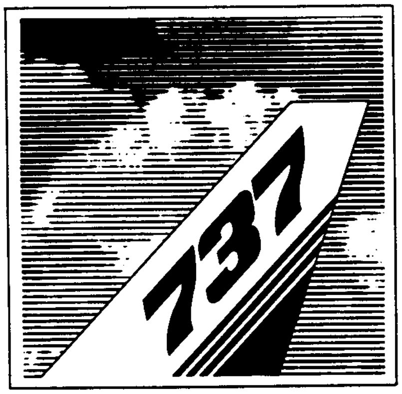

737-300/400/500
Airplane Characteristics for
Airport Planning

Boeing Commercial Airplane Group

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REVISIONS

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1.0 SCOPE AND INTRODUCTION

1.0 SCOPE AND INTRODUCTION

1.1 Scope

This document provides, in a standardized format, airplane characteristics data for general airport planning. Since operational practices vary among airlines, specific data should be coordinated with the using airlines prior to facility design. The Boeing Commercial Airplane Group should be contacted for any additional information required.

Content of the document reflects the results of a coordinated effort by representatives from the following organizations:

- Aerospace Industries Association
- Airport Operators Council International
- Air Transport Association of America
- International Air Transport Association

The airport planner may also want to consider the information presented in the "CTOL Transport Aircraft, Characteristics, Trends, and Growth Projections," available from the U.S. AIA, 1250 Eye St., Washington, D.C. 20005, for long-range planning needs. This document is updated periodically and represents the coordinated efforts of the following organizations regarding future aircraft growth trends:

- International Coordinating Council of Aerospace Industries Associations
- Airport Operators Council International, Inc.
- Air Transport Association of America
- International Air Transport Association

1.2 Introduction

This document conforms to NAS 3601. It provides characteristics of the Boeing Model 737-300, -400, -500 airplanes for airport planners and operators, airlines, architectural and engineering consultant organizations, and other interested industry agencies. Airplane changes and available options may alter model characteristics; the data presented herein reflect typical airplanes in each model category.

For additional information contact:

Boeing Commercial Airplane Group
P.O. Box 3707
Seattle, Washington 98124-2207
U.S.A.

Attention: Manager, Airport Technology
Mail Stop 67-KR

1.3 Brief Description and Comparison of the 737 Family of Airplanes

The 737 is a two-engine jet transport airplane designed to operate over short to medium ranges at cruise speeds to 580 mph (933 kmph) and from sea-level runways of less than 6,000 ft (1,830m) in length.

Significant features of interest to the airport planner are described below:

- Underwing-mounted engines provide "eye-level" assessability. Nearly all system maintenance may be performed at eye level.
- Optional airstairs allow operation at airports where no passenger loading bridges or stairs are available.
- Auxiliary power unit can supply energy for engine starting, air-conditioning, and electrical power while the airplane is on the ground or in flight.
- Servicing connections allow single-station pressure refueling and overwing gravity refueling.
- All servicing of the 737 is accomplished with standard ground equipment.

737-100

The 737-100 is the standard short-body version of the 737 family. It is 94 ft (28.63m) long from the nose to the tip of the horizontal stabilizer.

737-200

The 737-200 is an extended-body version of the 737 family and is 100 ft 2 in (30.53m) long. Two sections were added to the 737-100 fuselage; a 36-in section forward of the wing and a 40-in section aft of the wing. All other dimensions are the same as the 737-100.

Advanced 737-200

The Advanced 737-200 is a high-gross-weight airplane and has significant improvements over the 737-200 that result in improved performance—for example, longer range, greater payload, and shorter runway length requirement. The Adv 737-200 has identical dimensions to the 737-200.

737-200C, Adv 737-200C

The convertible version differs from the passenger model in that it has an 86- by 134-in (2.18m by 3.40m) main deck cargo door, increased floor strength, and additional seat tracks. Either of two cargo handling systems, the cargo (C) or quick change (QC) can be installed to allow conversion from a passenger configuration to a cargo or a mixed passenger/cargo configuration, and vice versa.

An 88- by 108-in (2.24m by 2.75m) or 88- by 125-in (2.24m by 3.18m) cargo pallet may be directly transferred without repackaging from 707, 727, or DC-8 cargo airplanes into the 737-200C or Adv 737-200C. The 108-in pallet allows access from the passenger compartment to the cockpit when the airplane is carrying passengers and cargo on the main deck. In the mixed configuration, the passengers are in the rear fuselage.

737-200 Executive Airplane

The 737-200 and Adv 737-200 were also delivered with an executive interior. The interior comes in a variety of configurations depending on customer requirements. Some airplanes were delivered without any interior furnishings for customer installation of special interiors.

737-300

The 737-300 is a second-generation, stretched version of the 737 family of airplanes and is 109 ft 7 in (33.40m) long. Two sections were added to the 737-200 fuselage; a 44-in section forward of the wing and a 60-in section aft of the wing. Wing and stabilizer spans are also increased. The 737-300 also incorporates new aerodynamic and engine technologies in addition to the increased payload and range. The -300 can seat as many as 149 passengers in all-economy configuration.

737-400

The 737-400 is 120 in longer than the -300. Two sections were added to the -300 fuselage; a 72-in section forward of the wing and a 48-in section aft of the wing. The -400 can seat as many as 168 passengers in an all-economy configuration.

737-500

The 737-500 is the shortened version of the 737-300. The -500 is 101 ft 9 in long and can seat up to 132 passengers in an all-economy configuration.

Engines

Early 737s were equipped with JT8D-7 engines. The -9, -15, and -17 and -17R engines reflect successive improvements in noise reduction, thrust, and maintenance costs. Other optional engines include the -9A, -15A, -17A, and -17AR. These engines were installed on the 737-100, 737-200, and Adv 737-200 airplanes.

The 737-300, -400, and -500 are equipped with new high-bypass-ratio engines (CFM56-3) that are economical to operate and maintain. These are quiet engines that meet current and near-future F.A.R. 36 Stage 3 and ICAO Annex 16 Chapter 3 noise standards. With these higher thrust engines and modified flight control surfaces, runway length requirement is reduced.

737 Gravel Runway Capability

The optional gravel runway capability allows the 737 to operate on remote, unimproved runways. The gravel kit includes gravel deflectors for the nose and main gears, vortex dissipators for each engine nacelle, and special protective finishes. Low-pressure tires are also required for operation on these low-strength runways.

The special environment of the gravel runway dictates changes in operating procedures and techniques for maximum safety and economy. Boeing Commercial Airplanes and the FAA have specified procedural changes for operating the 737 on gravel runways. Organizations interested in operational details are referred to the using airline or to Boeing.

Passenger Cabin Interiors

Early 737s were equipped with hatrack-type overhead stowage. Later models were equipped with a "wide-body look" interior which incorporates stowage bins in the sidewall and ceiling panels to simulate a superjet interior. More recent configurations include the carry-all compartment and the advanced technology interior. These interiors provide more stowage above the passenger seats.

Integral Airstairs

Optional airstairs allow passenger loading and unloading at airports where there are no loading bridges or stairs. The forward airstairs are mounted under the cabin floor just below the forward entry door. The aft airstairs are mounted on a special aft entry door and are deployed when the door is opened.

Auxiliary Fuel Tanks

An optional auxiliary fuel tank installed in the aft lower cargo compartment, provides extra range capability. Although this option increases range, it decreases payload.

Document Page Applicability

Several configurations have been developed for the 737 family of airplanes to meet varied airline requirements. Configurations shown in this document are typical, and individual airlines may have different combinations of options. The airline should be consulted for specific airplane configuration.

Document Applicability

The 737-100, -200, -200C and Adv 737-200, and -200C are no longer in production. Current production airplanes are the 737-300, -400, and -500.

This document describes the 737-300, -400, and -500 airplane models. The 737-100 and -200 airplane models are described in document D6-58325 Rev D, 737 Airplane Characteristics for Airport Planning.

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2.0 AIRPLANE DESCRIPTION

2.1 General Characteristics
2.2 General Dimensions
2.3 Ground Clearances
2.4 Interior Arrangements
2.5 Passenger Cabin Cross Sections
2.6 Lower Cargo Compartment Capacities
2.7 Door Clearances

2.0 AIRPLANE DESCRIPTION

2.1 General Airplane Characteristics

Maximum Design Taxi Weight (MTW). Maximum weight for ground maneuver as limited by aircraft strength and airworthiness requirements. (It includes weight of taxi and runup fuel.)

Maximum Design Landing Weight (MLW). Maximum weight for landing as limited by aircraft strength and airworthiness requirements.

Maximum Design Takeoff Weight (MTOW). Maximum weight for takeoff as limited by aircraft strength and airworthiness requirements. (This is the maximum weight at start of the takeoff run.)

Operating Empty Weight (OEW): Weight of structure, powerplant, furnishing system, unusable fuel and other unusable propulsion agents, and other items of equipment that are considered an integral part of a particular airplane configuration. Also included are certain standard items, personnel, equipment, and supplies necessary for full operations, excluding usable fuel and payload.

Maximum Design Zero Fuel Weight (MZFW). Maximum weight allowed before usable fuel and other specified usable agents must be loaded in defined sections of the aircraft as limited by strength and airworthiness requirements.

Maximum Payload. Maximum design zero fuel weight minus operational empty weight.

Maximum Seating Capacity. The maximum number of passengers specifically certified or anticipated for certification.

Maximum Cargo Volume. The maximum space available for cargo.

Usable Fuel. Fuel available for aircraft propulsion.

CHARACTERISTICS	UNITS	MODEL 737-300					
		CFM56-3B1 ENGINES (20,000 LB SLST)			CFM56-3B-2 ENGINE (22,000 LB SLST)		
MAX DESIGN TAXI WEIGHT	POUNDS	125,000	130,500	135,500	137,500	139,000	140,000
	KILOGRAMS	56,700	59,200	61,450	62,350	63,050	63,500
MAX DESIGN TAKEOFF WEIGHT	POUNDS	124,500	130,000	135,000	137,000	138,500	139,500
	KILOGRAMS	56,450	58,950	61,250	62,150	62,800	63,300
MAX DESIGN LANDING WEIGHT	POUNDS	114,000	114,000	114,000	114,000	115,800	115,800
	KILOGRAMS	51,700	51,700	51,700	51,700	52,550	52,550
MAX DESIGN ZERO FUEL WEIGHT	POUNDS	105,000	105,000	106,500	106,500	106,500	106,500
	KILOGRAMS	47,650	47,650	48,300	48,300	48,300	48,300
SPEC OPERATING EMPTY WEIGHT	POUNDS	69,400	71,870	72,540	72,540	72,540	72,540
	KILOGRAMS	31,500	32,600	32,900	32,900	32,900	32,900
MAX STRUCTURAL PAYLOAD	POUNDS	35,600	33,130	33,960	33,960	33,960	33,960
	KILOGRAMS	16,150	15,050	15,400	15,400	15,400	15,400
SEATING CAPACITY	MIXED CLASS	8 FIRST CLASS + 120 ECONOMY CLASS					
	ALL-ECONOMY	134 AT SIX-ABREAST: FAA EXIT LIMIT = 149					
MAX CARGO —LOWER DECK	CUBIC FEET	1,068	929 ①	841 ②	917 ③	792 ④	792 ④
	CUBIC METERS	30.2	26.3 ①	23.8 ②	26.0 ③	22.4 ④	22.4 ④
USABLE FUEL	U.S. GALLONS	5,311	5,701 ①	6,121 ②	5,803 ③	6,295 ④	6,295 ④
	LITERS	20,100	21,580 ①	23,170 ②	21,960 ③	23,830 ④	23,830 ④
	POUNDS	35,580	38,200 ①	41,010 ②	38,880 ③	42,180 ④	42,180 ④
	KILOGRAMS	16,150	17,350 ①	18,600 ②	17,650 ③	19,150 ④	19,150 ④

NOTES: TYPICAL ENGINE/WEIGHT COMBINATION SHOWN. OTHER COMBINATIONS ARE AVAILABLE.
CONSULT WITH AIRLINE FOR SPECIFIC WEIGHTS AND CONFIGURATIONS
① AIRPLANE WITH 390 GAL (1,475 L) AUXILIARY FUEL TANK IN AFT CARGO COMPARTMENT.
② AIRPLANE WITH 810 GAL (3,065 L) AUXILIARY FUEL TANK IN AFT CARGO COMPARTMENT.
③ AIRPLANE WITH 500 GAL (1,893 L) AUXILIARY FUEL TANK IN AFT CARGO COMPARTMENT.
④ AIRPLANE WITH 1,000 GAL (3,785 L) AUXILIARY FUEL TANK IN AFT CARGO COMPARTMENT.

2.1.1 GENERAL CHARACTERISTICS

MODEL 737-300

CHARACTERISTICS	UNITS	MODEL 737-400					
		CFM56-3B2 ENGINES (22,000 LB SLST)			CFM56-3C ENGINE (23,500 LB SLST)		
MAXIMUM DESIGN TAXI WEIGHT	POUNDS	139,000	143,000	150,500	143,000	144,000	150,500
	KILOGRAMS	63,050	64,850	68,250	64,850	65,300	68,250
MAXIMUM DESIGN TAKEOFF WEIGHT	POUNDS	138,500	142,500	150,000	142,500	143,500	150,000
	KILOGRAMS	62,800	64,650	68,050	64,650	65,100	68,050
MAXIMUM DESIGN LANDING WEIGHT	POUNDS	121,000	121,000	124,000	124,000	124,000	124,000
	KILOGRAMS	54,900	54,900	54,900	56,250	56,250	56,250
MAXIMUM DESIGN ZERO FUEL WEIGHT	POUNDS	113,000	113,000	117,000	117,000	117,000	117,000
	KILOGRAMS	51,250	51,250	53,050	53,050	53,050	53,050
SPEC OPERATING EMPTY WEIGHT	POUNDS	73,170	73,170	73,170	74,170	74,170	74,170
	KILOGRAMS	33,200	33,200	33,200	33,650	33,650	33,650
MAX STRUCTURAL PAYLOAD	POUNDS	39,830	39,830	43,830	42,830	42,830	42,830
	KILOGRAMS	18,050	18,050	19,900	19,450	19,450	19,450
SEATING CAPACITY	MIXED CLASS	8 FIRST CLASS + 138 ECONOMY CLASS					
	ALL-ECONOMY	159 AT SIX-ABREAST: FAA EXIT LIMIT = 189					
MAX CARGO —LOWER DECK	CUBIC FEET	1,373	1,234 ①	1,146 ②	1,222 ③	1,097 ④	1,097 ④
	CUBIC METERS	38.9	34.9 ①	32.4 ②	34.6 ③	31.0 ④	31.0 ④
USABLE FUEL	U.S. GALLONS	5,311	5,701 ①	6,121 ②	5,803 ③	6,295 ④	6,295 ④
	LITERS	20,100	21,580 ①	23,170 ②	21,960 ③	23,830 ④	23,830 ④
	POUNDS	35,580	38,200 ①	41,010 ②	38,880 ③	42,180 ④	42,180 ④
	KILOGRAMS	16,150	17,350 ①	18,600 ②	17,650 ③	19,150 ④	19,150 ④

NOTES: TYPICAL ENGINE/WEIGHT COMBINATION SHOWN. OTHER COMBINATIONS ARE AVAILABLE.
CONSULT WITH AIRLINE FOR SPECIFIC WEIGHTS AND CONFIGURATIONS

① AIRPLANE WITH 390 GAL (1,475 L) AUXILIARY FUEL TANK IN AFT CARGO COMPARTMENT.
② AIRPLANE WITH 810 GAL (3,065 L) AUXILIARY FUEL TANK IN AFT CARGO COMPARTMENT.
③ AIRPLANE WITH 500 GAL (1,893 L) AUXILIARY FUEL TANK IN AFT CARGO COMPARTMENT.
④ AIRPLANE WITH 1,000 GAL (3,785 L) AUXILIARY FUEL TANK IN AFT CARGO COMPARTMENT.

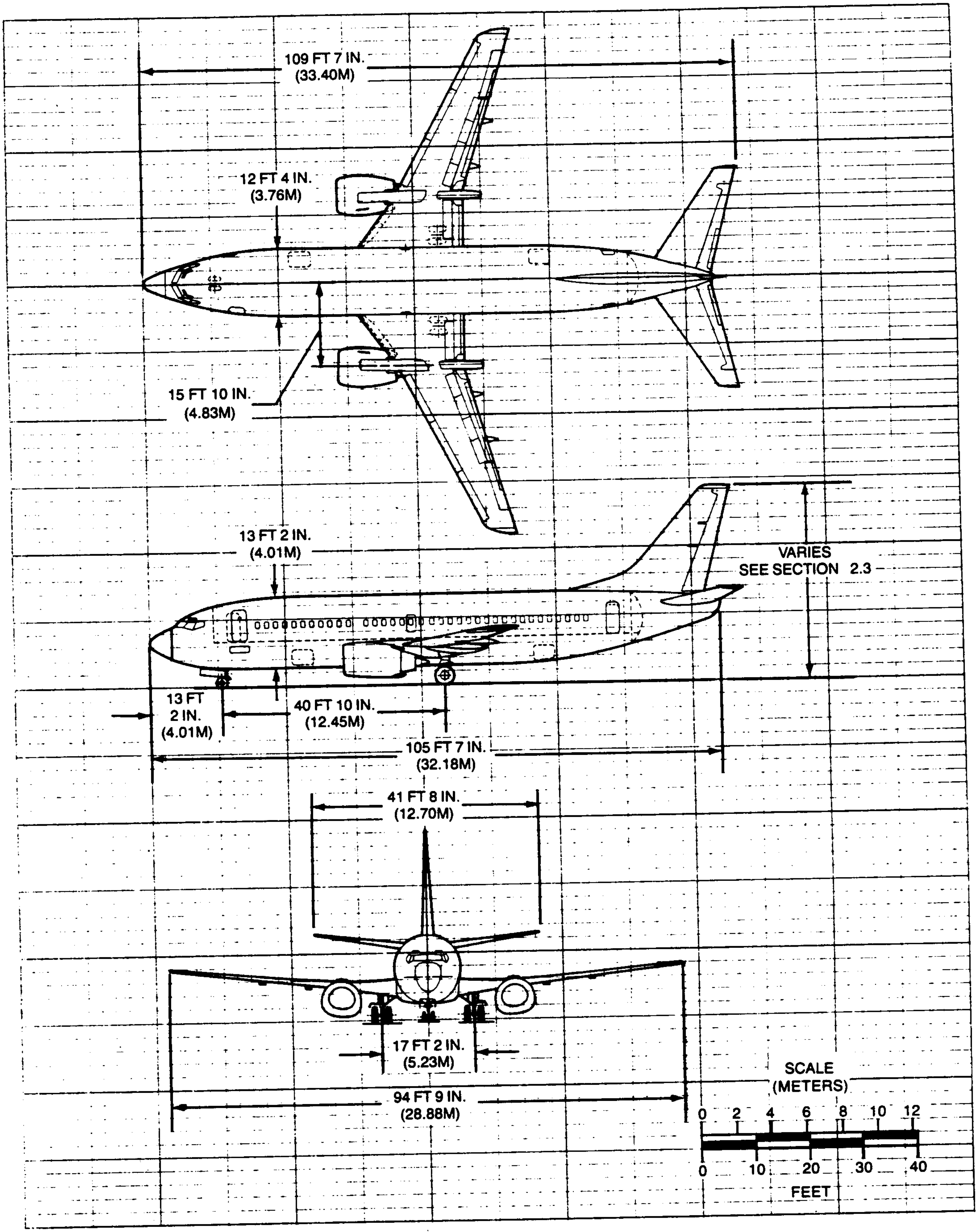
2.1.2 GENERAL CHARACTERISTICS
MODEL 737-400

CHARACTERISTICS	UNITS	MODEL 737-500				
		CFM56-3B-1 ENGINES (18,500 LB SLST)			CFM56-3B-1 ENGINE (20,000 LB SLST)	
MAXIMUM DESIGN TAXI WEIGHT	POUNDS	116,000	125,000	134,000	125,000	134,000
	KILOGRAMS	52,600	56,700	60,800	56,700	60,800
MAXIMUM DESIGN TAKEOFF WEIGHT	POUNDS	115,500	124,500	133,500	124,500	133,500
	KILOGRAMS	52,400	56,450	60,550	56,450	60,550
MAXIMUM DESIGN LANDING WEIGHT	POUNDS	110,000	110,000	110,000	110,000	110,000
	KILOGRAMS	49,900	49,900	49,900	49,900	49,900
MAXIMUM DESIGN ZERO FUEL WEIGHT	POUNDS	102,500	102,500	102,500	102,500	102,500
	KILOGRAMS	46,500	46,500	46,500	46,500	46,500
SPEC OPERATING EMPTY WEIGHT	POUNDS	69,030	69,030	69,030	69,030	69,030
	KILOGRAMS	31,300	31,300	31,300	31,300	31,300
MAX STRUCTURAL PAYLOAD	POUNDS	33,470	33,470	33,470	33,470	33,470
	KILOGRAMS	15,200	15,200	15,200	15,200	15,200
SEATING CAPACITY	MIXED CLASS	8 FIRST CLASS + 100 ECONOMY CLASS				
	ALL-ECONOMY	122 AT SIX-ABREAST: FAA EXIT LIMIT = 149				
MAX CARGO —LOWER DECK	CUBIC FEET	822	683 ①	595 ②	671 ③	546 ④
	CUBIC METERS	23.3	19.3 ①	16.8 ②	19.0 ③	15.5 ④
USABLE FUEL	U.S. GALLONS	5,311	5,701 ①	6,121 ②	5,803 ③	6,295 ④
	LITERS	20,100	21,580 ①	23,170 ②	21,960 ③	23,830 ④
	POUNDS	35,580	38,200 ①	41,010 ②	38,880 ③	42,180 ④
	KILOGRAMS	16,150	17,350 ①	18,600 ②	17,650 ③	19,150 ④

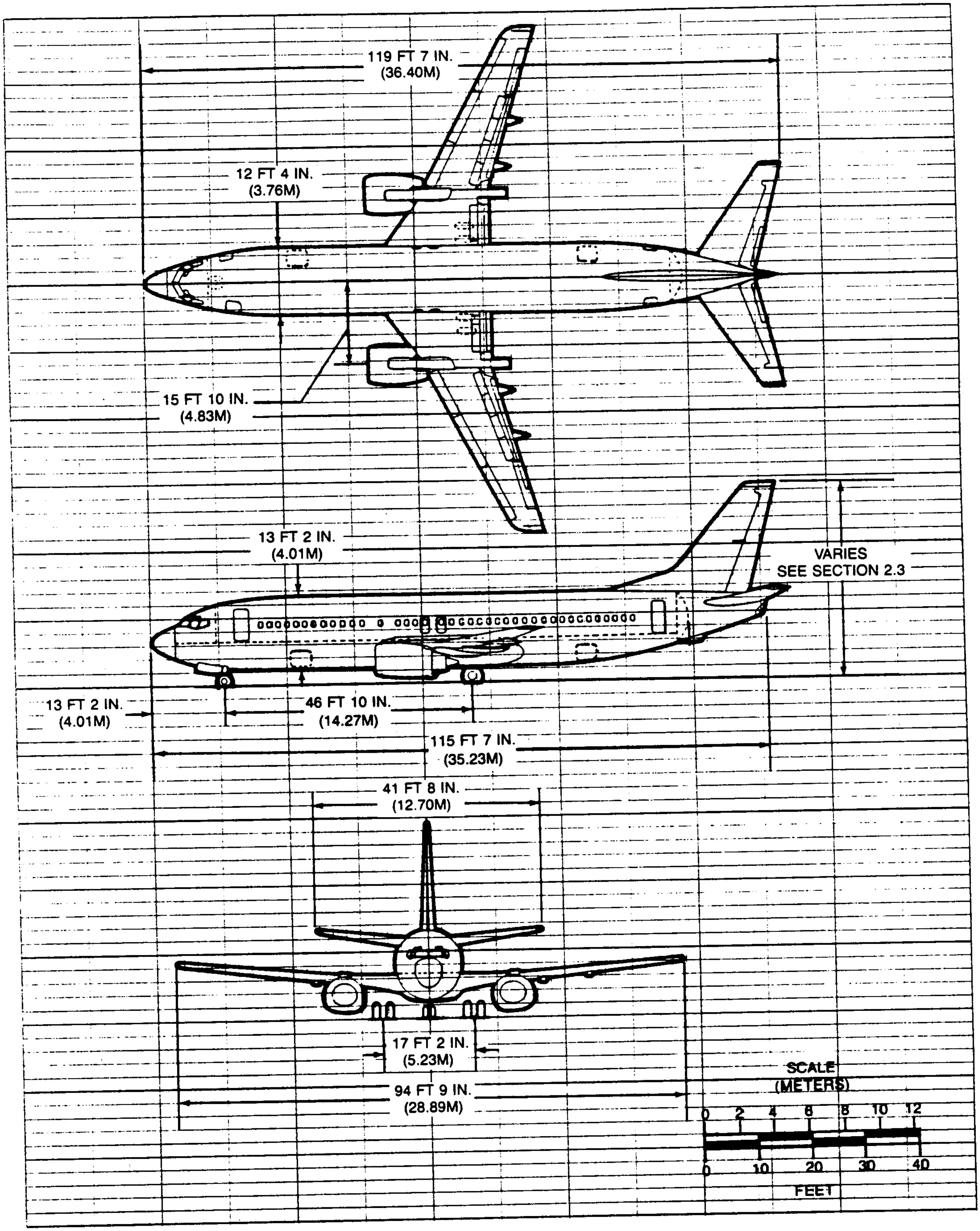
NOTES: TYPICAL ENGINE/WEIGHT COMBINATION SHOWN. OTHER COMBINATIONS ARE AVAILABLE. CONSULT WITH AIRLINE FOR SPECIFIC WEIGHTS AND CONFIGURATIONS

① AIRPLANE WITH 390 GAL (1,475 L) AUXILIARY FUEL TANK IN AFT CARGO COMPARTMENT.
② AIRPLANE WITH 810 GAL (3,065 L) AUXILIARY FUEL TANK IN AFT CARGO COMPARTMENT.
③ AIRPLANE WITH 500 GAL (1,893 L) AUXILIARY FUEL TANK IN AFT CARGO COMPARTMENT.
④ AIRPLANE WITH 1,000 GAL (3,785 L) AUXILIARY FUEL TANK IN AFT CARGO COMPARTMENT.

2.1.3 GENERAL CHARACTERISTICS
MODEL 737-500

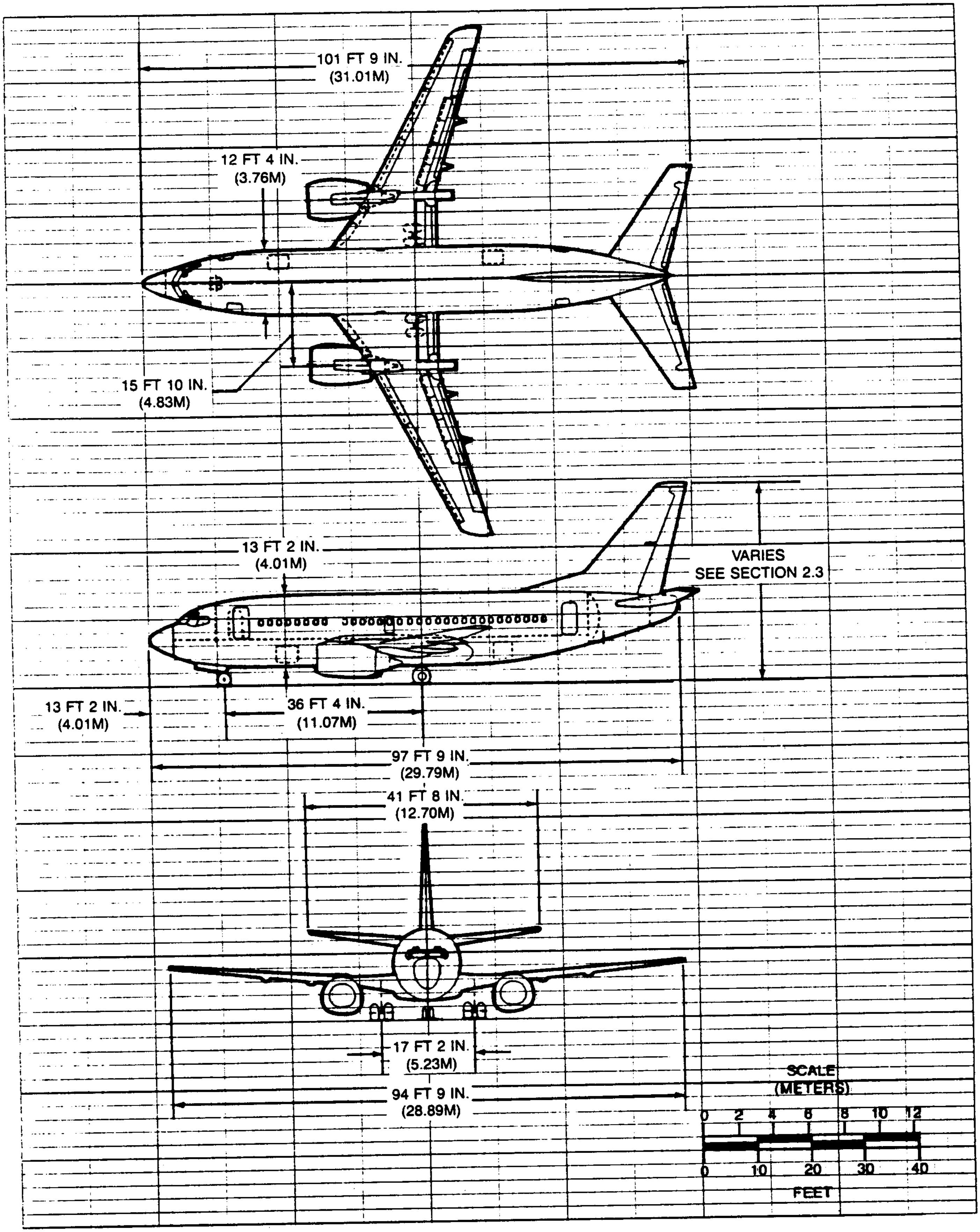


2.2.1 GENERAL DIMENSIONS
MODEL 737-300

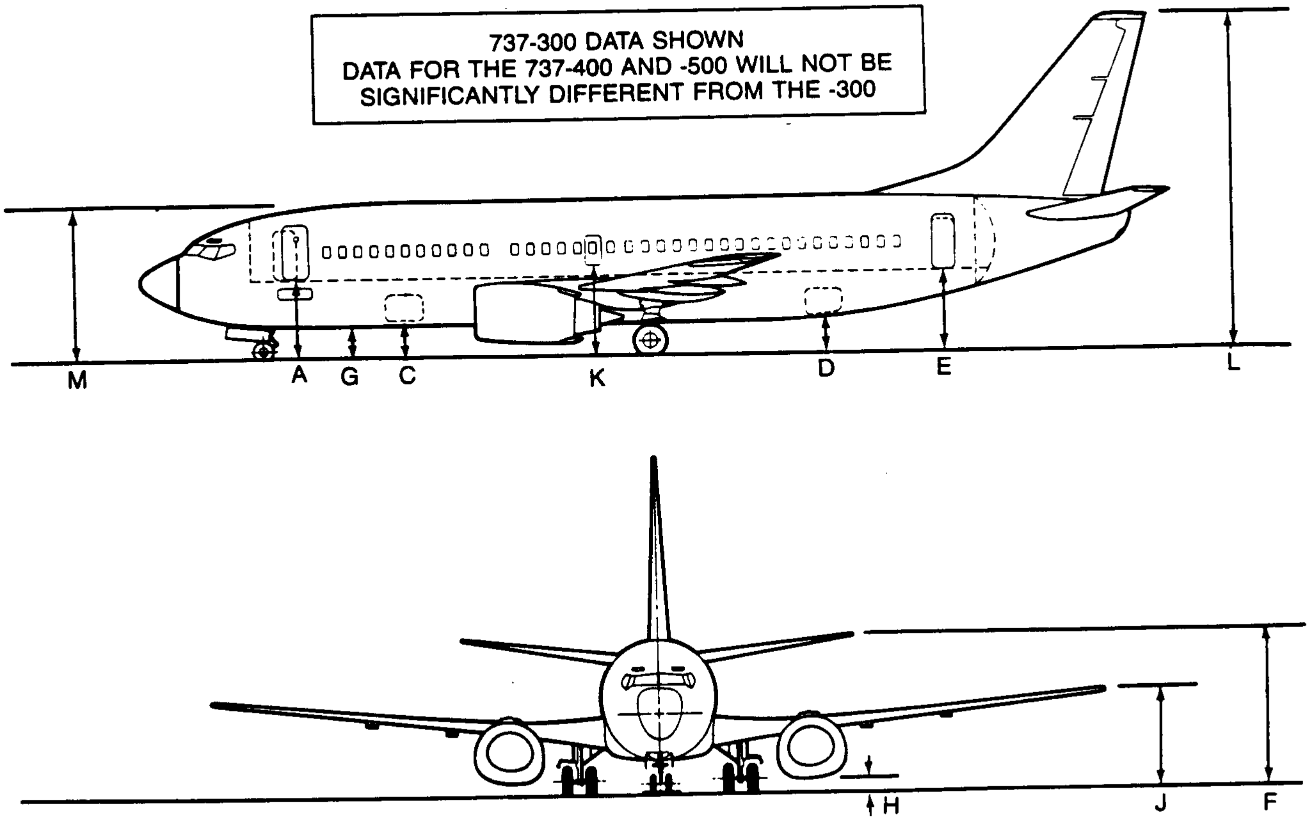


2.2.2 GENERAL DIMENSIONS

MODEL 737-400



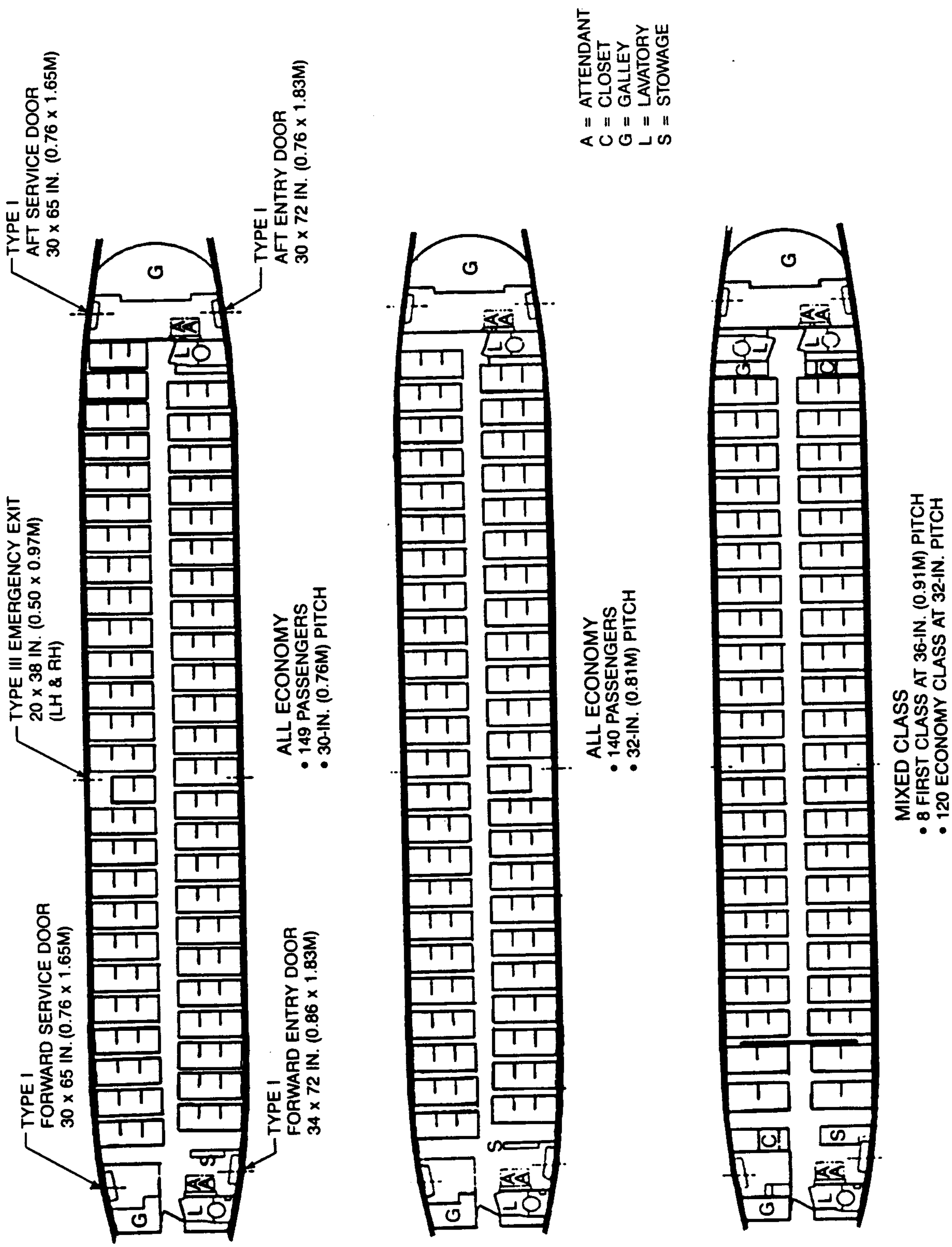
2.2.3 GENERAL DIMENSIONS
MODEL 737-500



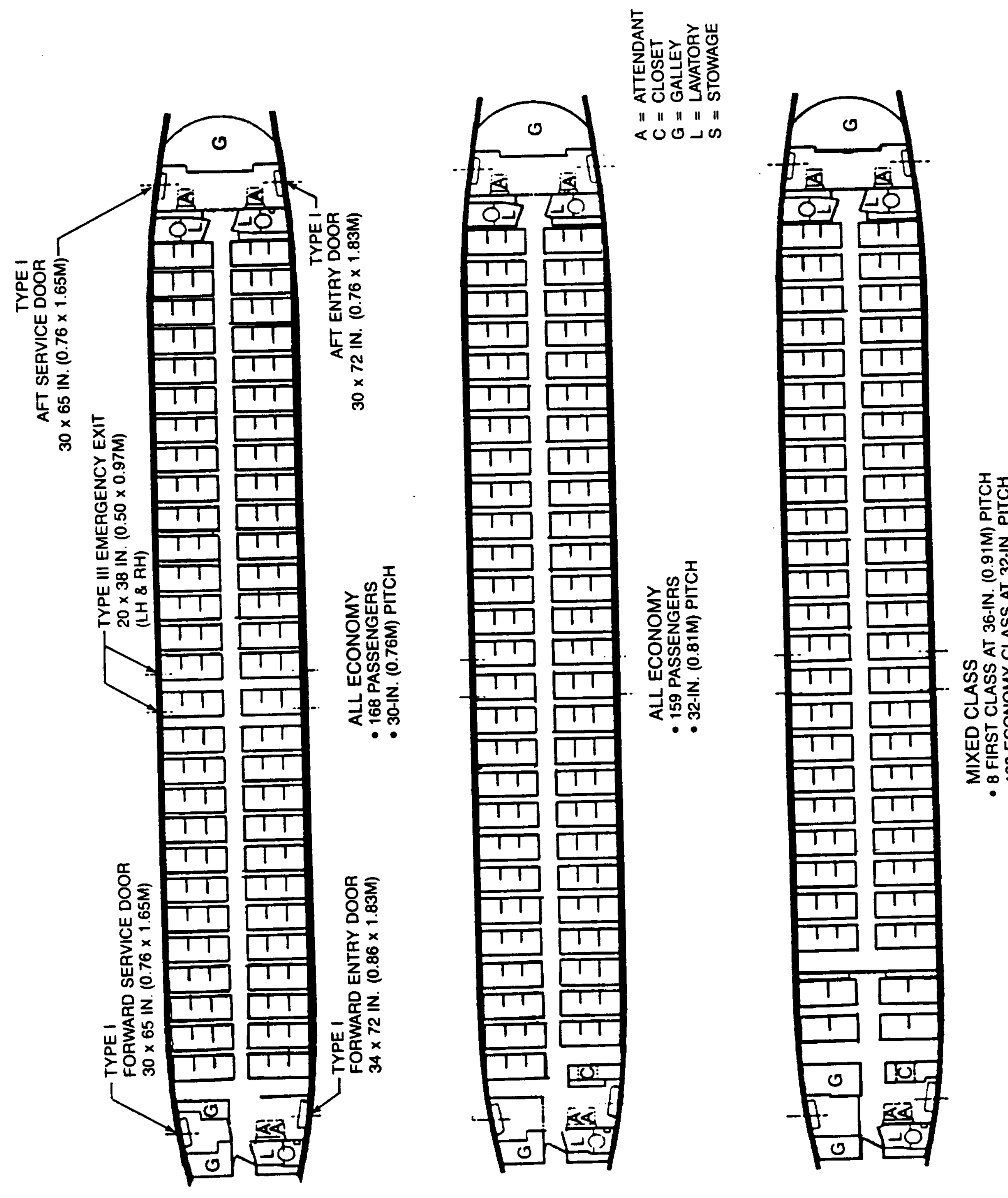
VERTICAL CLEARANCES				
	OPERATING EMPTY WEIGHT (OEW)		MAXIMUM DESIGN TAXI WEIGHT	
	FEET-INCHES	METERS	FEET-INCHES	METERS
A	9-1	2.77	8-7	2.62
C	4-7	1.40	4-2	1.27
D	4-6	1.37	4-6	1.37
E	8-7	2.62	8-9	2.67
F	16-3	4.95	16-8	5.08
G	3-10	1.17	3-4	1.02
H	1-9	0.53	1-6	0.46
J	10-2	3.09	10-0	3.05
K	10-6	3.20	10-4	3.15
L	36-4	11.07	36-7	11.15
M	17-3	5.26	16-10	5.13

NOTE: VALUES ARE NOMINAL. ADD ± 3 INCHES TO ACCOUNT FOR VARIATIONS IN LOADING, OLEO AND TIRE PRESSURES, CENTER OF GRAVITY, ETC.

2.3 GROUND CLEARANCES
MODELS 737-300, -400, -500

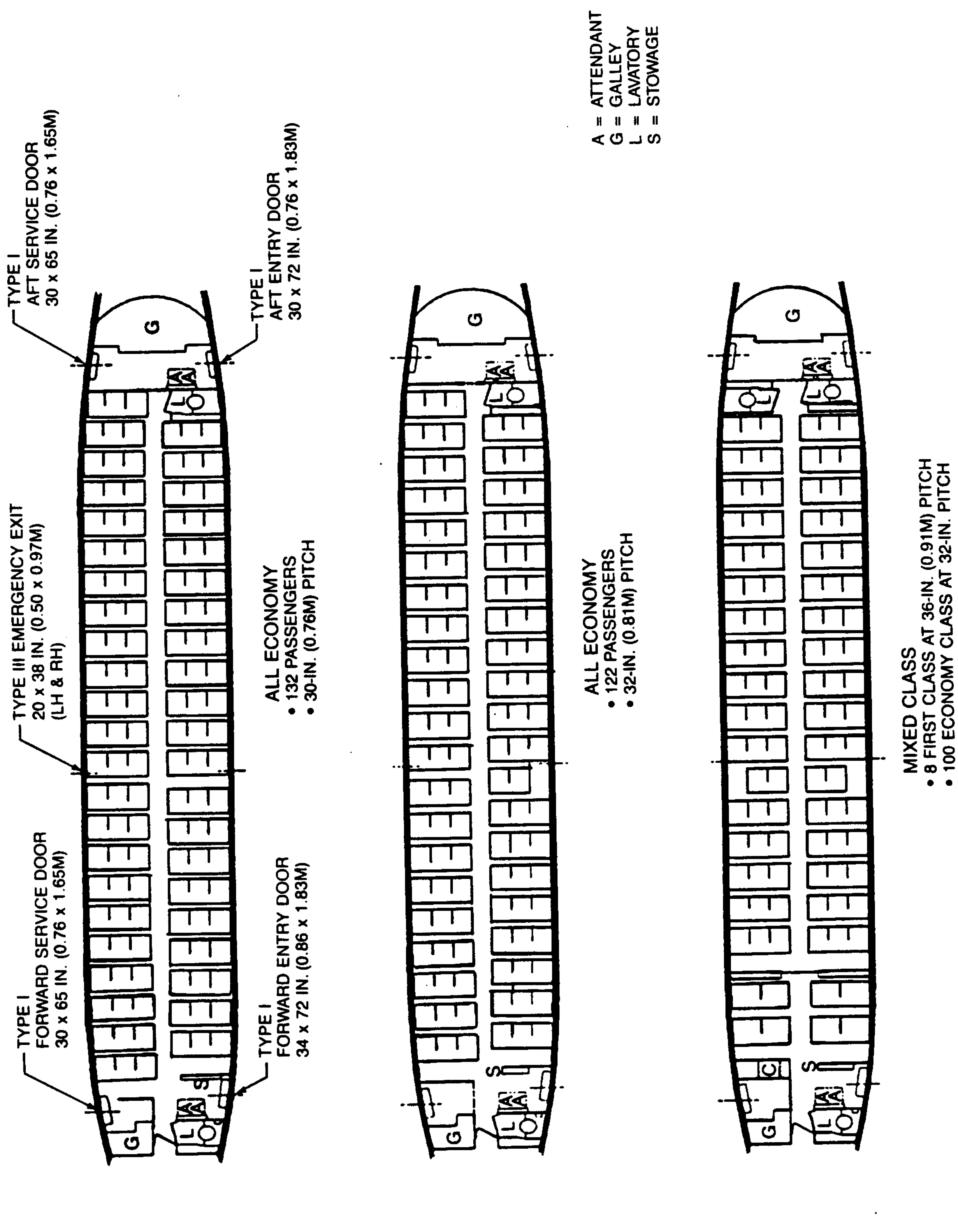


2.4.1 INTERIOR ARRANGEMENTS
MODEL 737-300

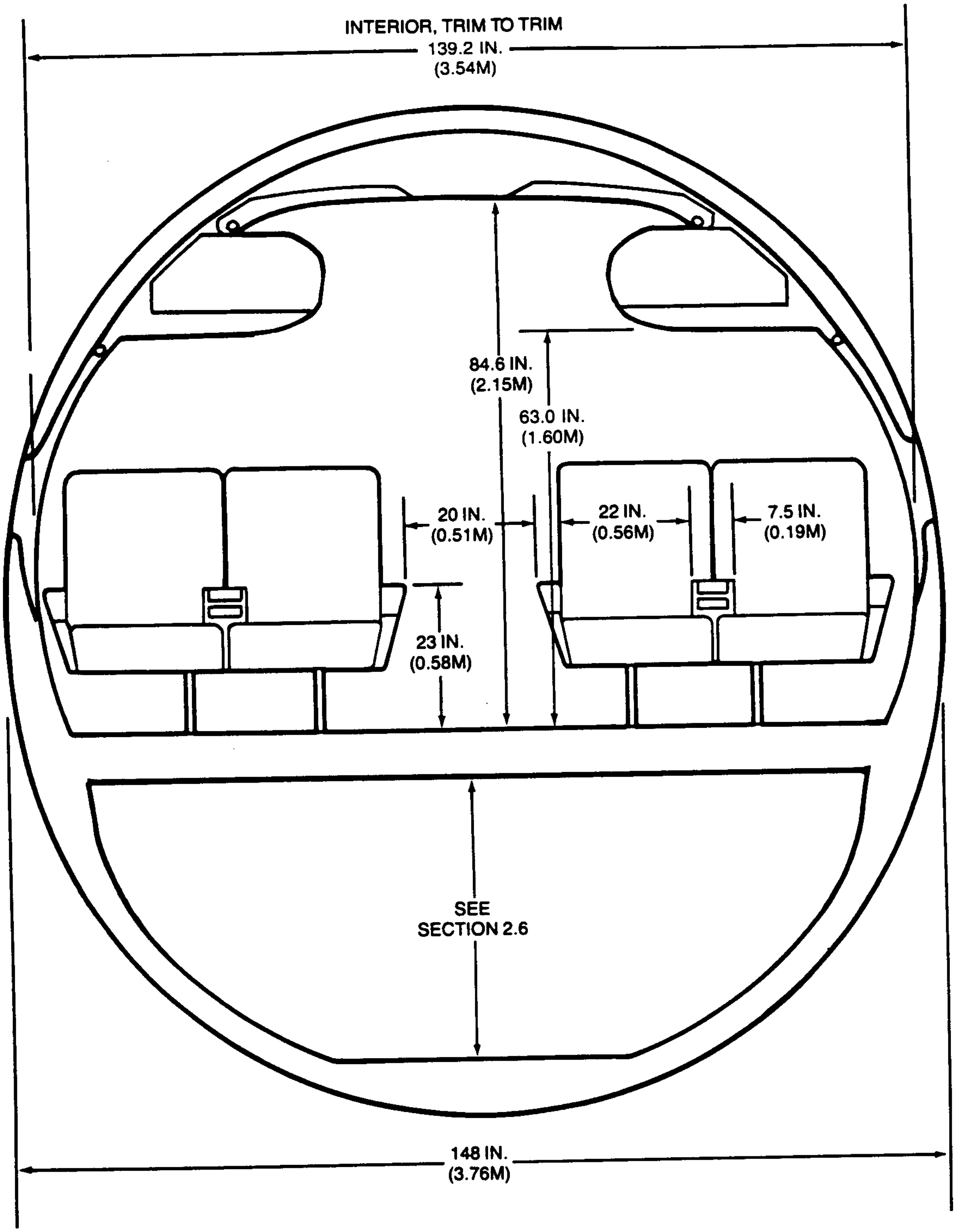


2.4.2 INTERIOR ARRANGEMENTS

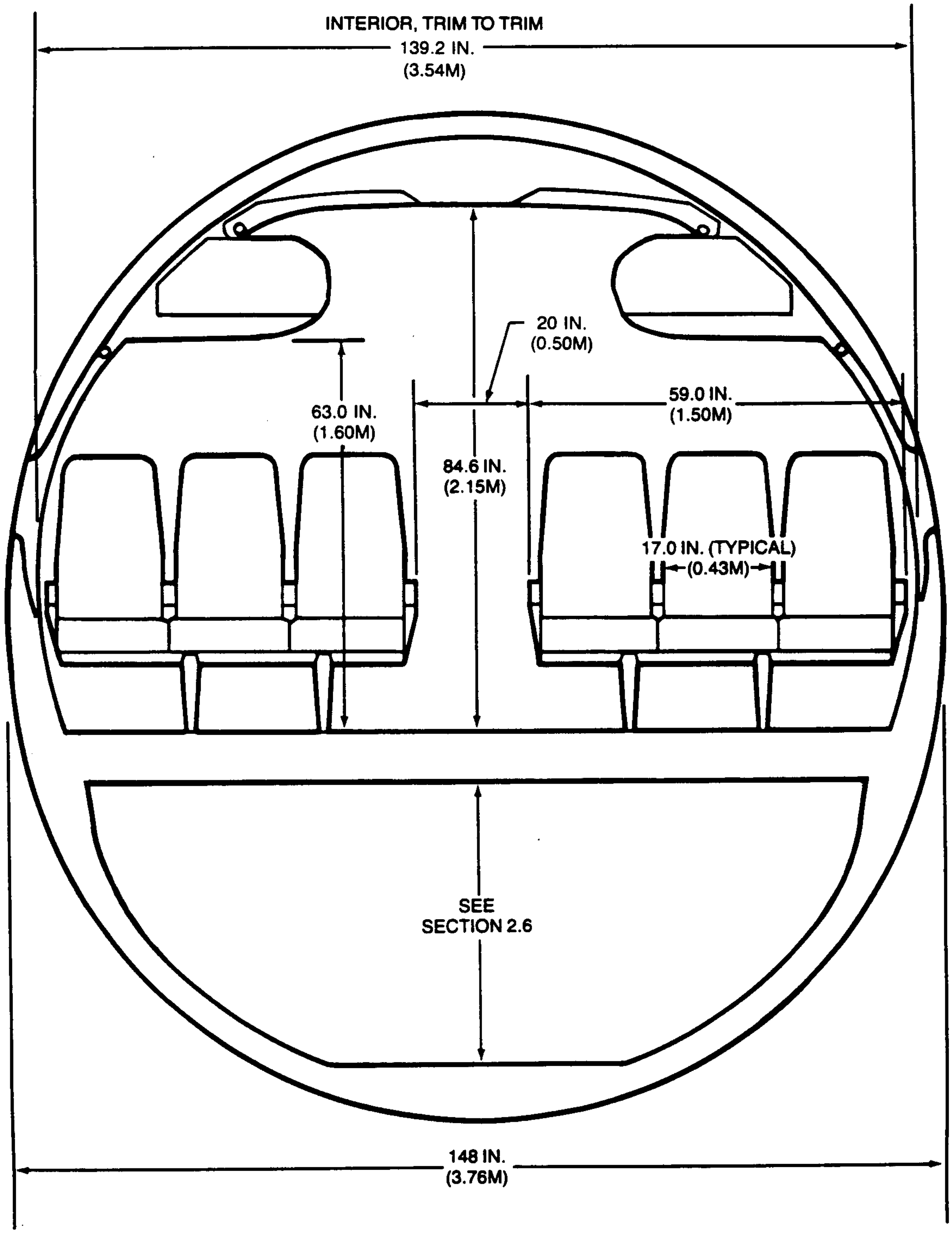
MODEL 737-400



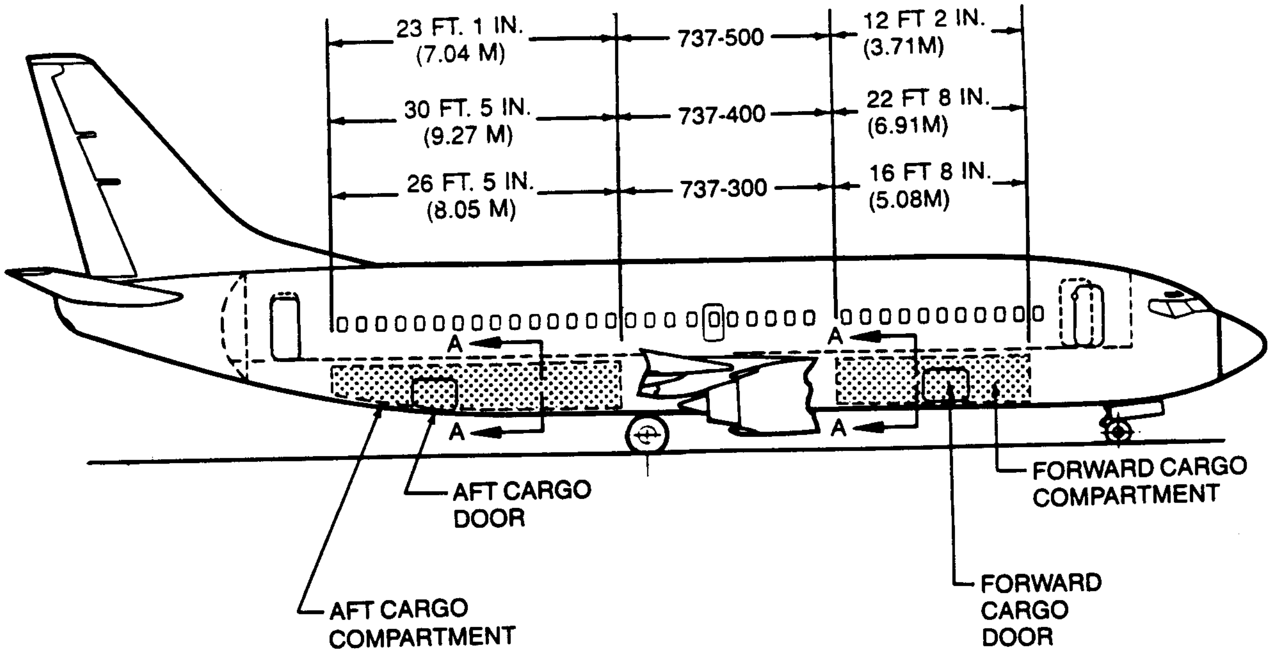
2.4.3 INTERIOR ARRANGEMENTS
MODEL 737-500



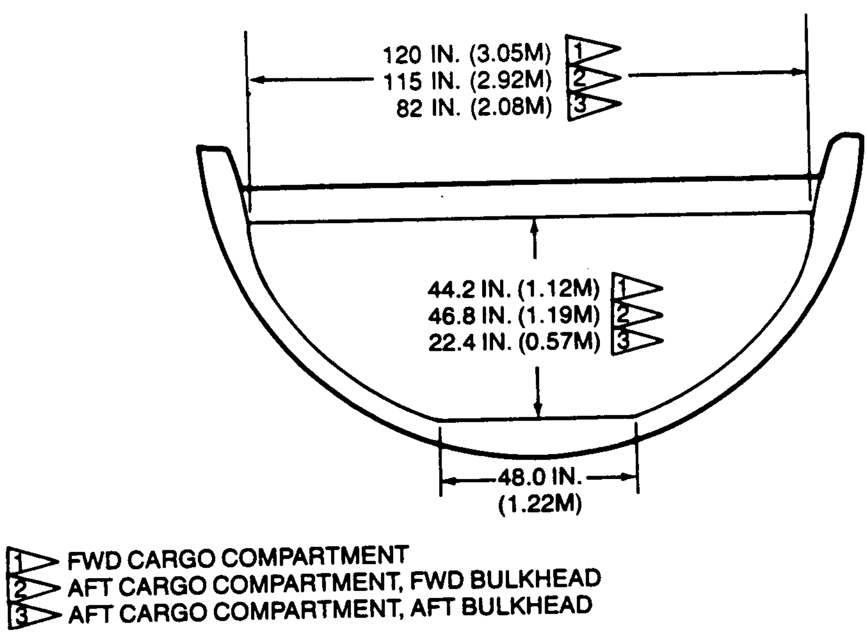
2.5.1 PASSENGER CABIN CROSS SECTION—4-ABREAST SEATING
MODELS 737-300, -400, -500



2.5.2 PASSENGER CABIN CROSS SECTION—6-ABREAST SEATING
MODELS 737-300, -400, -500



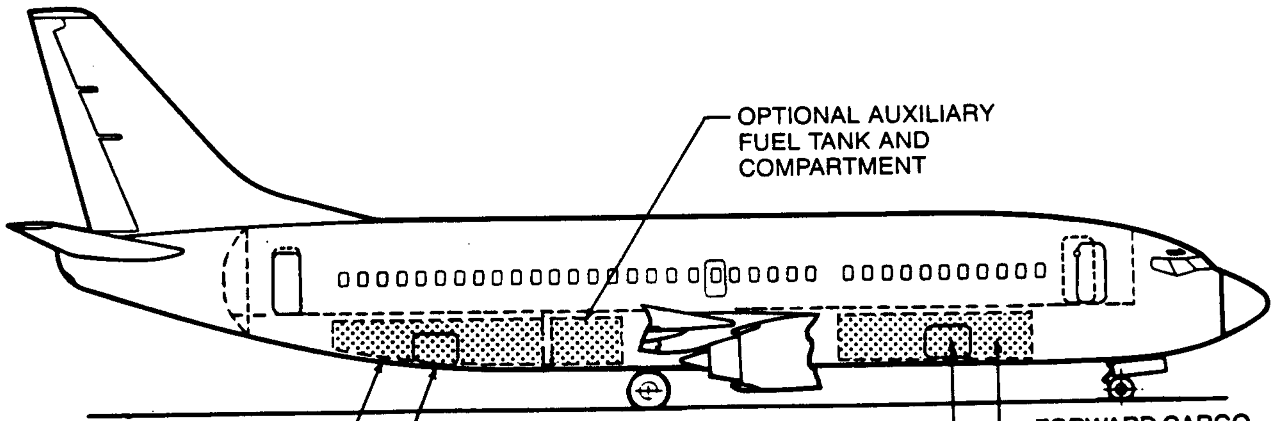
RIGHT SIDE VIEW



SECTION A-A

2.6.1 LOWER CARGO COMPARTMENTS—DIMENSIONS

MODELS 737-300, -400, -500

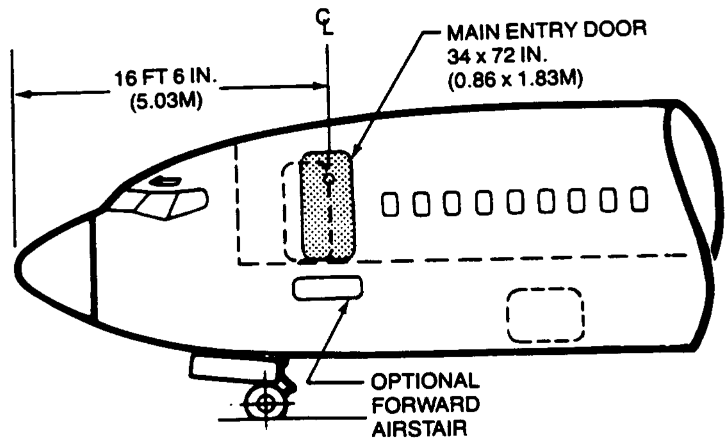


RIGHT SIDE VIEW

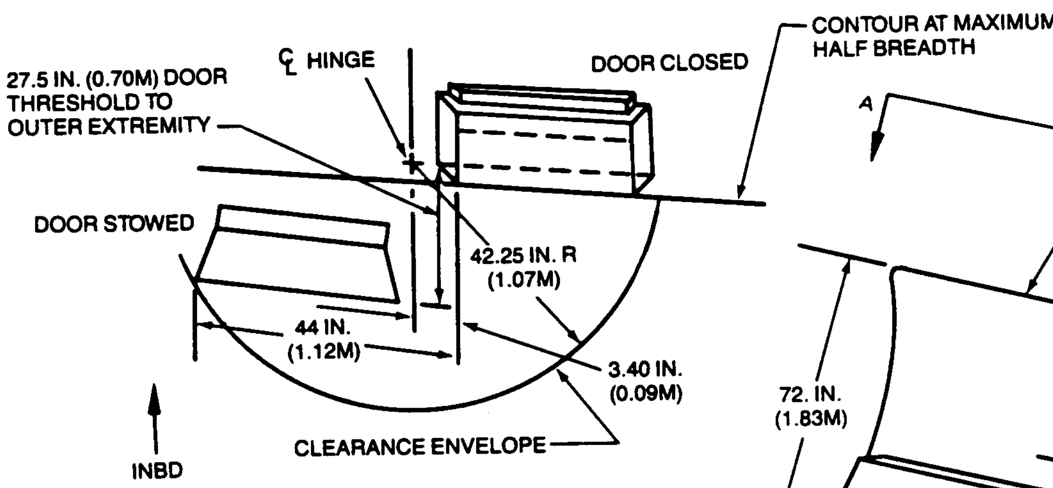
AIRPLANE MODEL	AFT CARGO COMPARTMENT			FORWARD COMPARTMENT BULK CARGO	TOTAL BULK CARGO	NOTES
	BULK CARGO	AUXILIARY FUEL TANK CAPACITY	AUXILIARY FUEL TANK COMPARTMENT CAPACITY			
737-300	643 CU FT (18.2 CU M)	0	0	425 CU FT (12.0 CU M)	1,068 CU FT (30.2 CU M)	①
	504 CU FT (14.3 CU M)	390 GAL (1,475 L)	139 CU FT (3.9 CU M)		929 CU FT (26.3 CU M)	②
	416 CU FT (11.8 CU M)	810 GAL (3,065 L)	227 CU FT (6.4 CU M)		841 CU FT (23.8 CU M)	②
	492 CU FT (13.9 CU M)	500 GAL (1,893 L)	151 CU FT (4.3 CU M)		917 CU FT (26.0 CU M)	③
	367 CU FT (10.4 CU M)	1,000 GAL (3,785 L)	276 CU FT (7.8 CU M)		792 CU FT (22.4 CU M)	③
737-400	766 CU FT (21.7 CU M)	0	0	607 CU FT (17.2 CU M)	1,373 CU FT (38.9 CU M)	①
	627 CU FT (17.7 CU M)	390 GAL (1,475 L)	139 CU FT (3.9 CU M)		1,234 CU FT (34.9 CU M)	②
	539 CU FT (15.3 CU M)	810 GAL (3,065 L)	227 CU FT (6.4 CU M)		1,146 CU FT (32.4 CU M)	②
	615 CU FT (17.4 CU M)	500 GAL (1,893 L)	151 CU FT (4.3 CU M)		1,222 CU FT (34.6 CU M)	③
	490 CU FT (13.9 CU M)	1,000 GAL (3,785 L)	276 CU FT (7.8 CU M)		1,097 CU FT (31.0 CU M)	③
737-500	535 CU FT (15.1 CU M)	0	0	287 CU FT (8.1 CU M)	822 CU FT (23.3 CU M)	①
	396 CU FT (11.2 CU M)	390 GAL (1,475 L)	139 CU FT (3.9 CU M)		683 CU FT (19.3 CU M)	②
	308 CU FT (8.7 CU M)	810 GAL (3,065 L)	227 CU FT (6.4 CU M)		595 CU FT (16.8 CU M)	②
	384 CU FT (10.9 CU M)	500 GAL (1,893 L)	151 CU FT (4.3 CU M)		671 CU FT (19.0 CU M)	③
	259 CU FT (7.3 CU M)	1,000 GAL (3,785 L)	276 CU FT (7.8 CU M)		546 CU FT (15.5 CU M)	③

NOTES: ① WITHOUT AUXILIARY FUEL TANK
② WITH BOEING-INSTALLED AUXILIARY FUEL TANK
③ WITH ROGERSON-INSTALLED AUXILIARY FUEL TANK

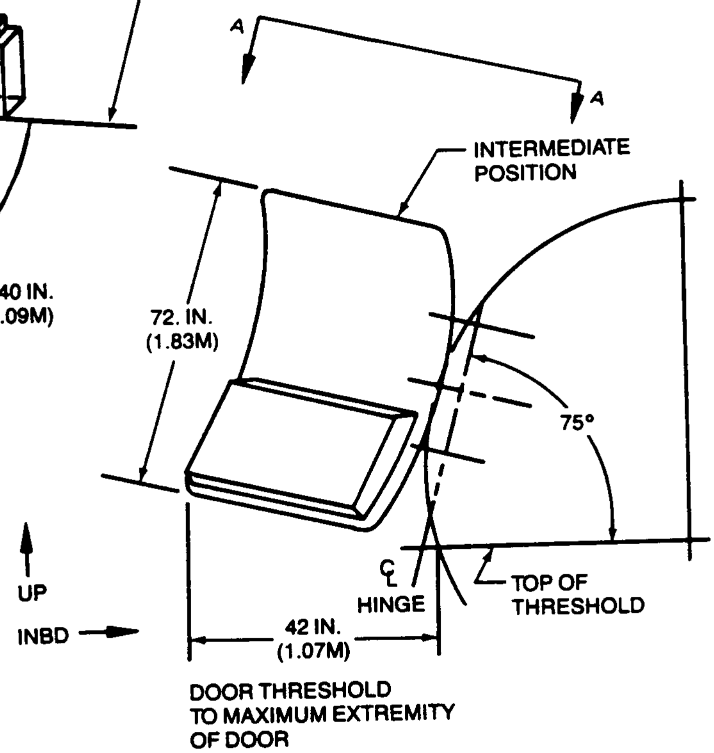
2.6.2 LOWER CARGO COMPARTMENTS—CAPACITIES
MODELS 737-300, -400, -500



LEFT SIDE VIEW



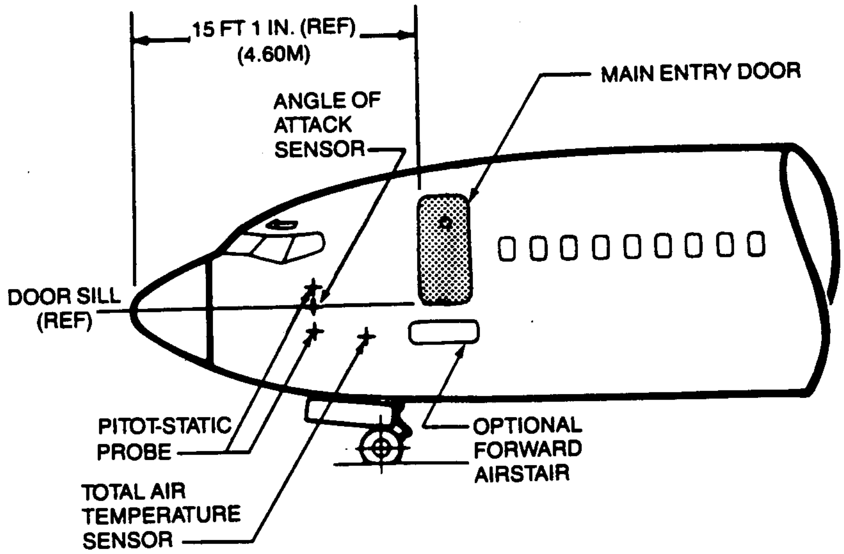
SECTION A-A



REAR VIEW

2.7.1 DOOR CLEARANCES—FORWARD MAIN ENTRY DOOR NUMBER 1

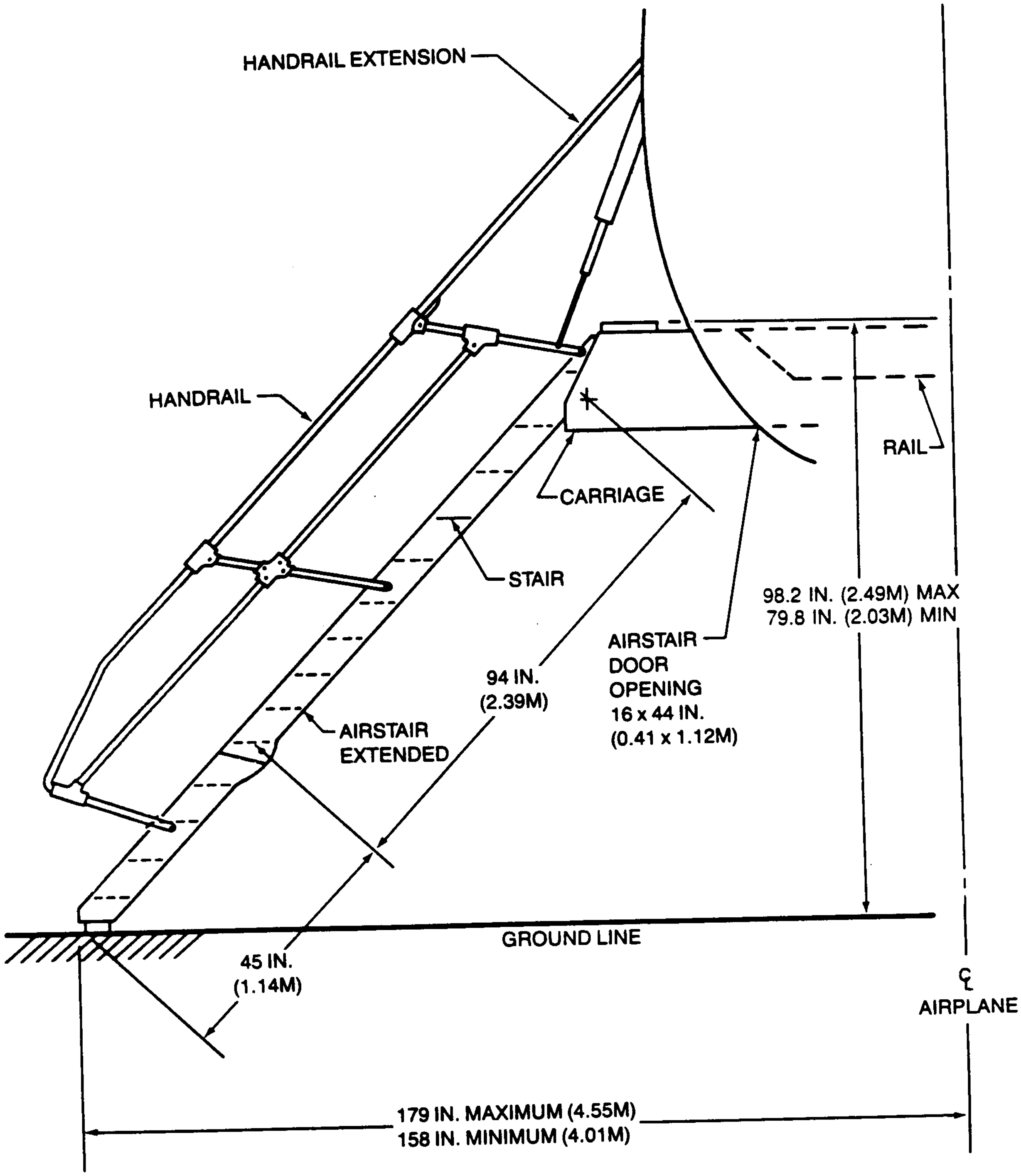
MODELS 737-300, -400, -500



LEFT SIDE VIEW

NAME OF SENSOR	DISTANCE AFT OF NOSE	DISTANCE ABOVE (+) OR BELOW (-) DOOR SILL REF. LINE	PROTRUSION FROM AIRPLANE SKIN
PITOT-STATIC	9 FT 10 IN. (3.0M)	10 IN. (+) (0.25M)	6 IN. (0.15M)
PITOT-STATIC	9 FT 10 IN. (3.0M)	9 IN. (-) (0.23M)	
ANGLE OF ATTACK	9 FT 10 IN. (3.0M)	1 IN. (-) (0.03M)	4 IN. (0.10M)
TOTAL AIR TEMPERATURE	11 FT 6 IN. (3.51M)	1 FT 6 IN. (-) (0.46M)	

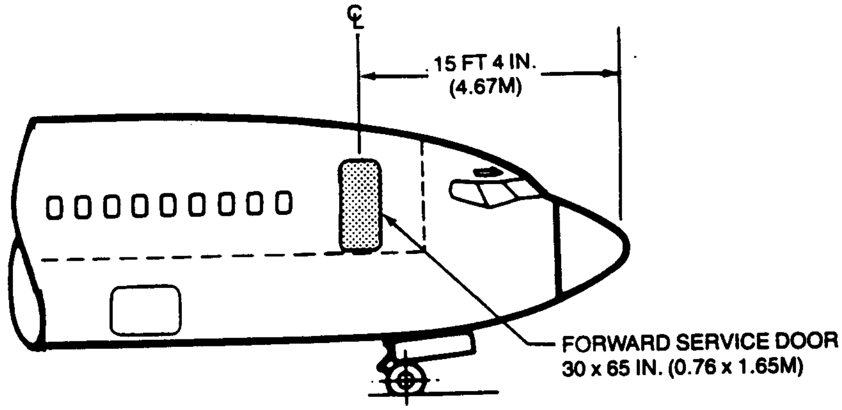
2.7.2 DOOR CLEARANCES—LOCATION OF SENSORS AND PROBES FORWARD OF MAIN ENTRY DOOR NUMBER 1
MODELS 737-300, -400, -500



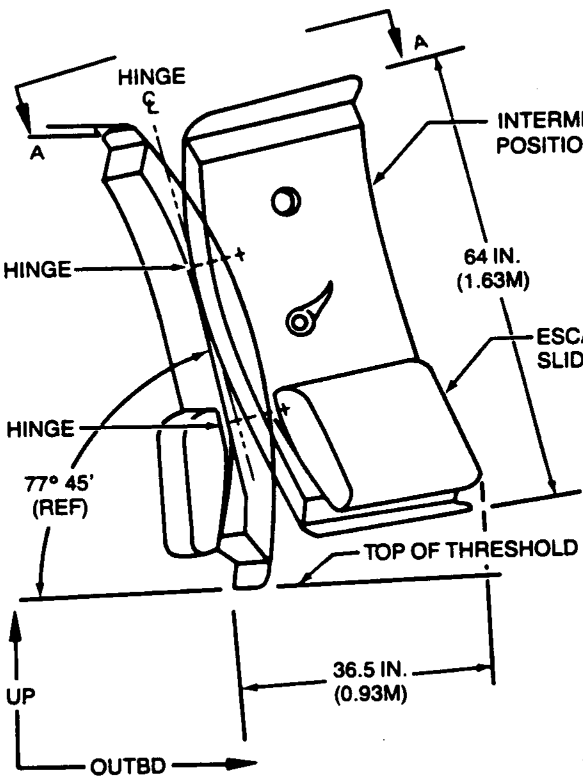
REAR VIEW

2.7.3 DOOR CLEARANCES—OPTIONAL FORWARD AIRSTAIR—MAIN ENTRY DOOR

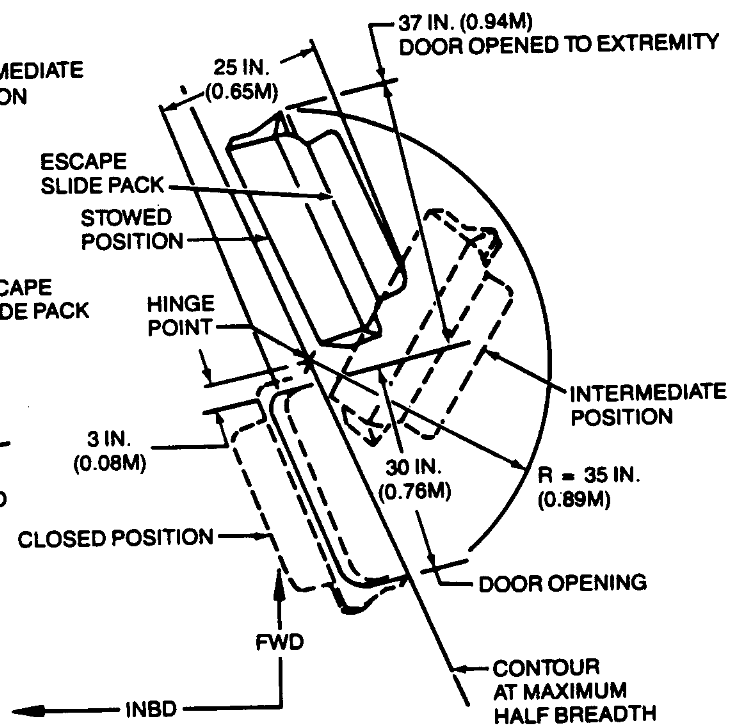
MODELS 737-300, -400, -500



RIGHT SIDE VIEW



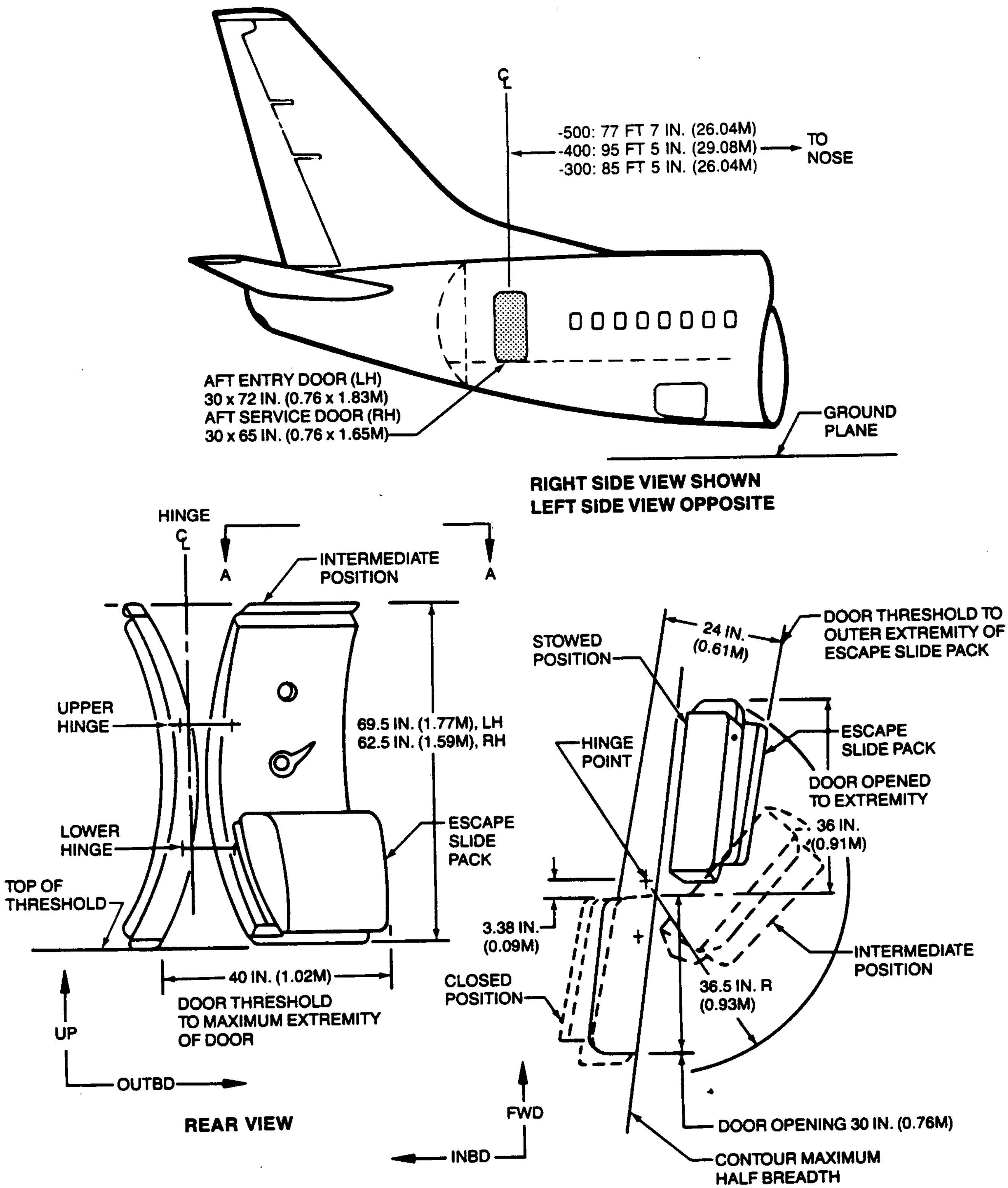
REAR VIEW



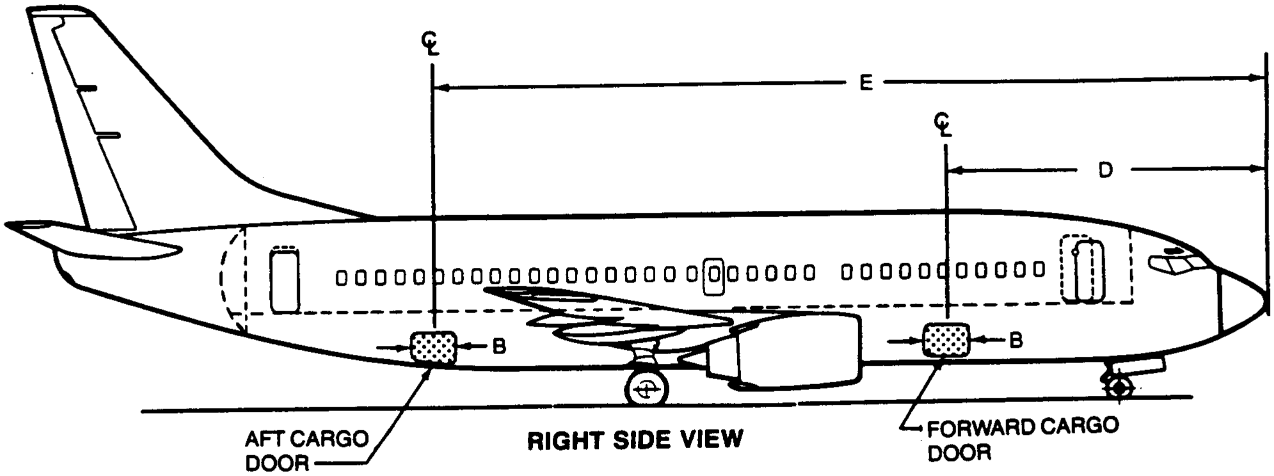
SECTION A-A

2.7.4 DOOR CLEARANCES—FORWARD SERVICE DOOR

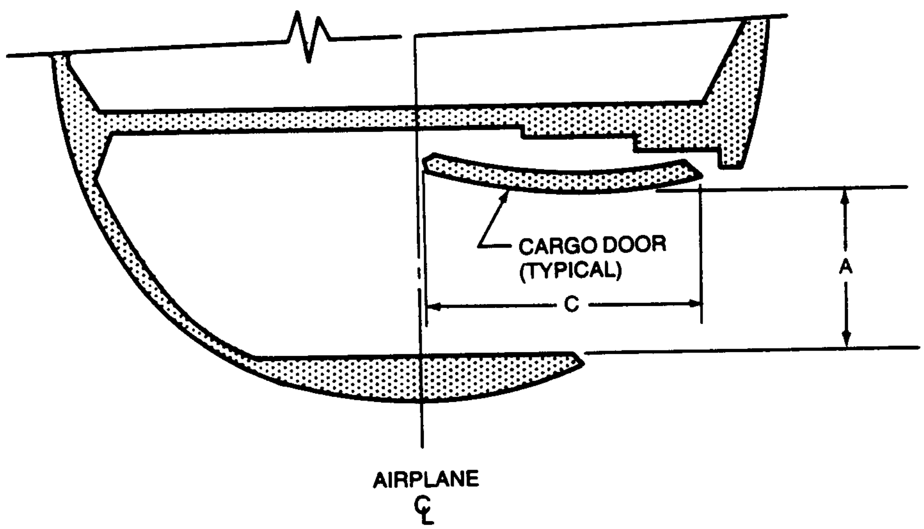
MODELS 737-300, -400, -500



2.7.5 DOOR CLEARANCES—AFT ENTRY DOOR AND AFT SERVICE DOOR
MODELS 737-300, -400, -500



RIGHT SIDE VIEW



PARTIAL SECTION

AIRPLANE MODEL	FORWARD CARGO DOOR DOOR SIZE (C x B)	FORWARD CARGO DOOR CLEAR OPENING (A x B)	FORWARD CARGO DOOR DISTANCE NOSE TO DOOR CL (D)	AFT CARGO DOOR DOOR SIZE (C x B)	AFT CARGO DOOR CLEAR OPENING (A x B)	AFT CARGO DOOR DISTANCE NOSE TO DOOR CL (E)
737-300			28 FT 0.25 IN. (8.54M)			72 FT 6.5 IN. (22.12M)
737-400	51 x 48 IN. (1.30 x 1.22M)	35 x 48 IN. (0.89 x 1.22M)	28 FT 0.25 IN. (8.54M)	48 x 48 IN. (1.22 x 1.22M)	33 x 48 IN. (0.84 x 1.22M)	82 FT 6.5 IN. (25.16M)
737-500			24 FT 8.25 IN. (7.52M)			64 FT 8.5 IN. (19.72M)

2.7.6 DOOR CLEARANCES—LOWER DECK CARGO

MODELS 737-300, -400, -500

3.0 AIRPLANE PERFORMANCE

3.0 AIRPLANE PERFORMANCE

3.1 General Information

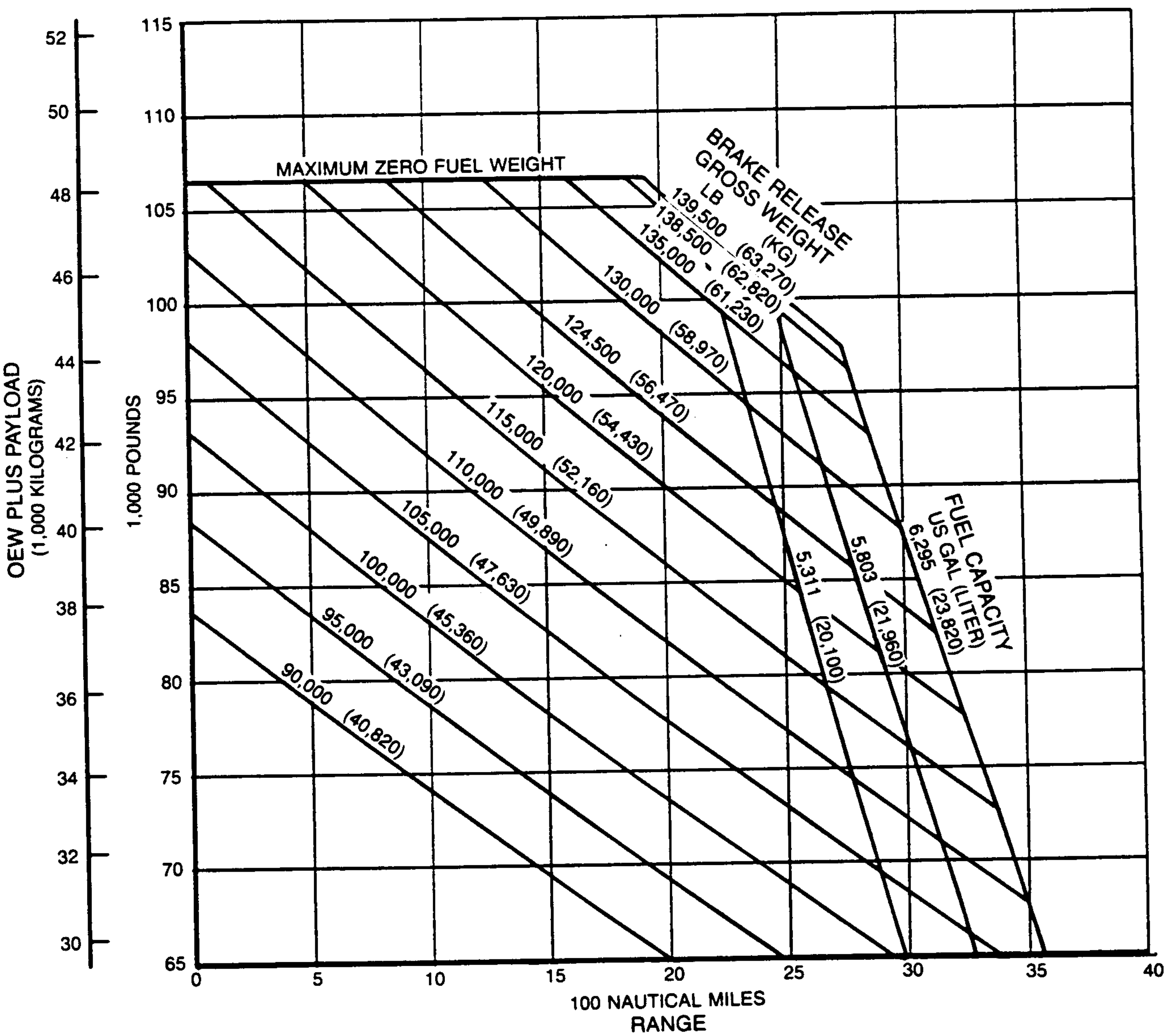
The graphs in Section 3.2 provide information on operational empty weight (OEW) and payload, trip range, brake-release gross weight, and fuel limits for airplane models with different engines. To use these graphs, if the trip range and zero-fuel weight (OEW + payload) are known, the approximate brake-release weight can be found, limited by fuel quantity. Examples of loading conditions under certain OEWs are illustrated in each graph.

The graphs in Section 3.3 provide information on F.A.R. takeoff runway length requirements with the different engines at different pressure altitudes. Maximum takeoff weights shown on the graphs are the heaviest for the particular airplane models with the corresponding engines. Standard day temperatures for pressure altitudes shown on the F.A.R takeoff graphs are given below:

PRESSURE ALTITUDE		STANDARD-DAY TEMPERATURE	
FEET	METERS	°F	°C
0	0	59.0	15.00
2,000	610	51.9	11.04
4,000	1,219	44.7	7.06
6,000	1,829	37.6	3.11
8,000	2,438	30.5	-0.85

The graphs in Section 3.4 provide information on landing runway length requirements for different airplane weights and airport altitudes. The maximum landing weights shown are the heaviest for the particular airplane model.

NOTES:
- DOMESTIC RESERVES
- CFM56-3B-1 OR CFM56-3B-2 ENGINES
- STANDARD DAY, ZERO WIND
- LRC AT 31,000/35,000 FT
- CONSULT WITH USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN

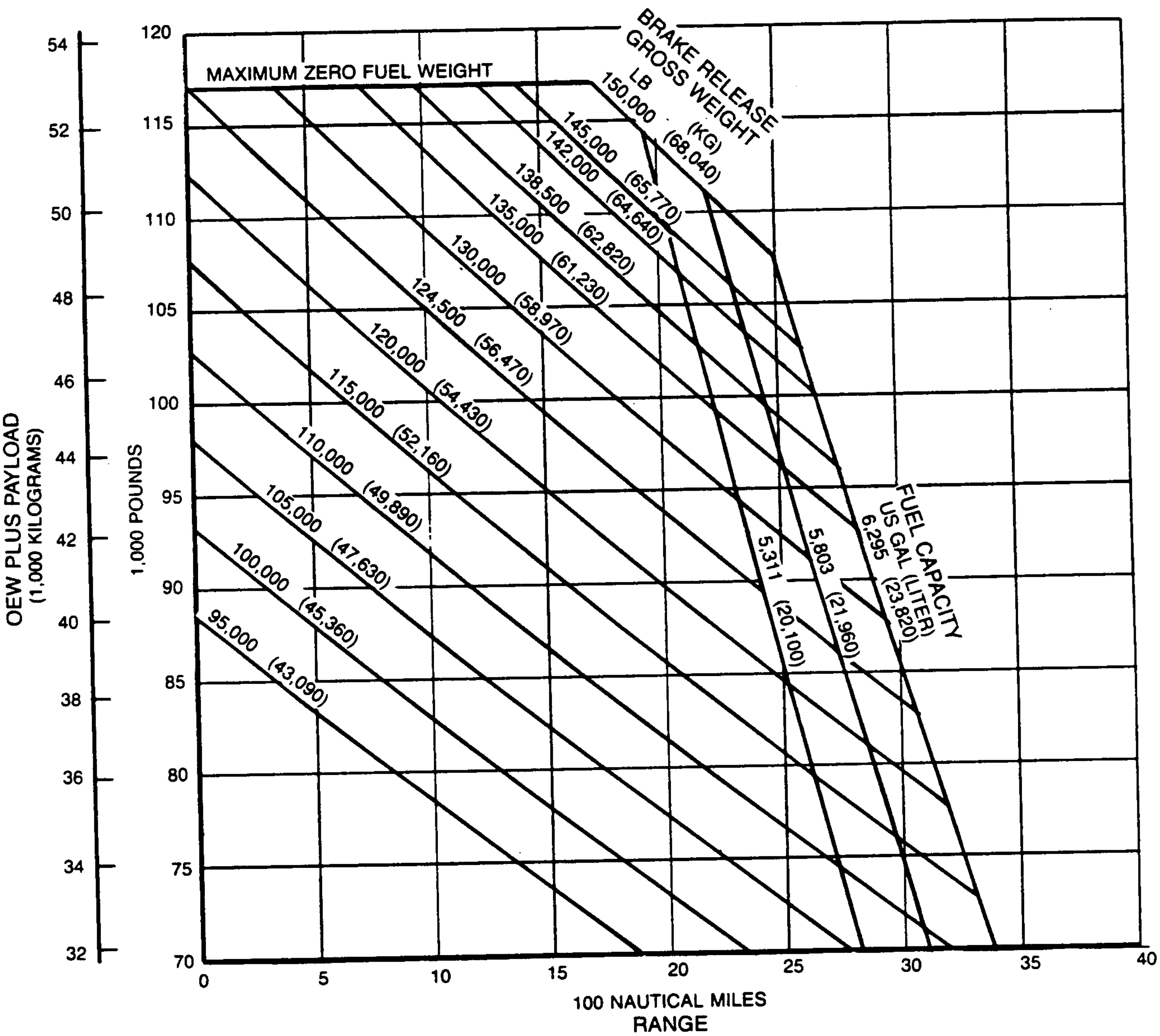


3.2.1 PAYLOAD/RANGE FOR LONG-RANGE CRUISE

MODEL 737-300

NOTES:

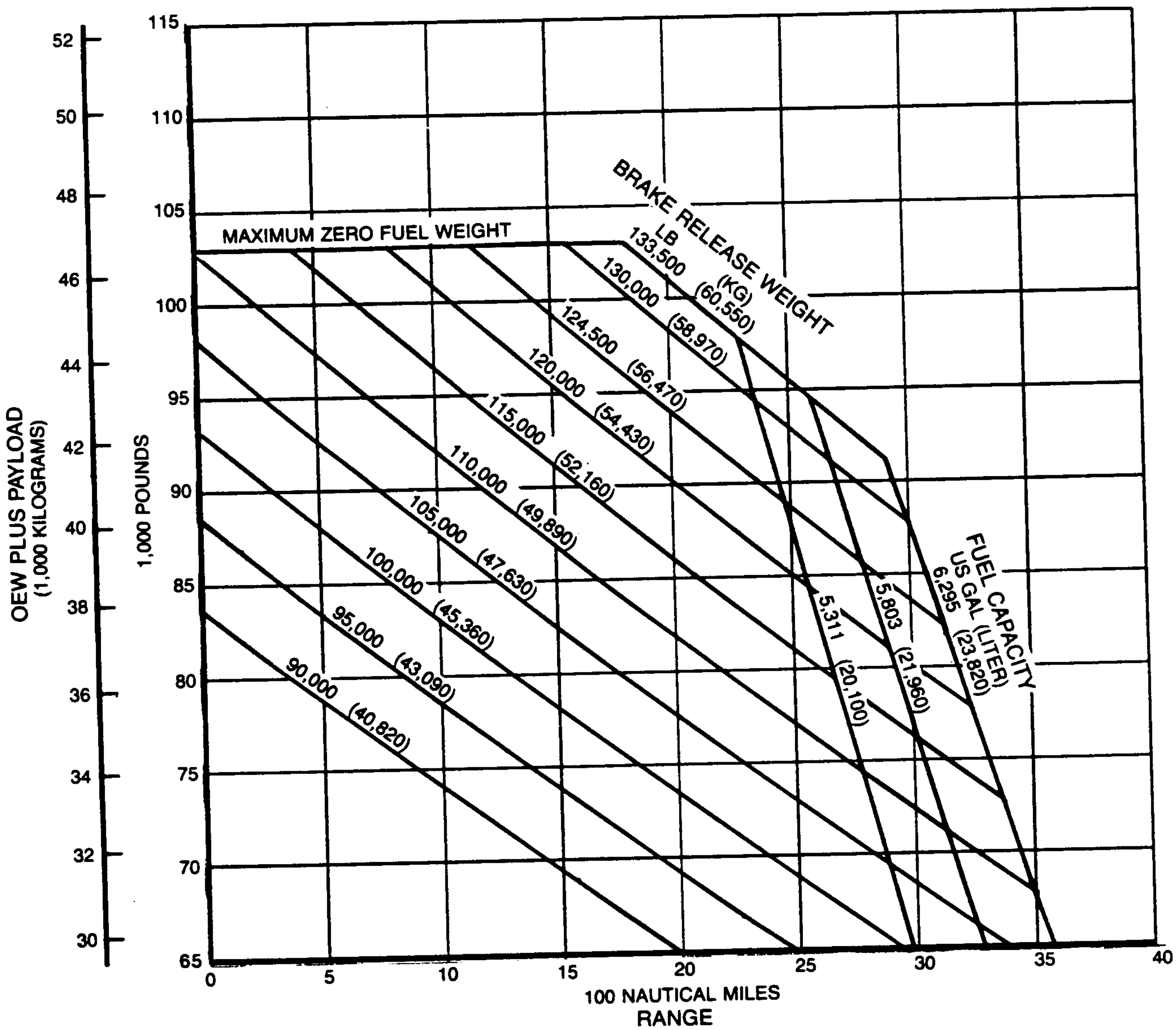
- DOMESTIC RESERVES
- CFM56-3B-2 OR CFM56-3C-1 ENGINES
- STANDARD DAY, ZERO WIND
- LRC AT 31,000/35,000 FT
- CONSULT WITH USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN



3.2.2 PAYLOAD/RANGE FOR LONG-RANGE CRUISE

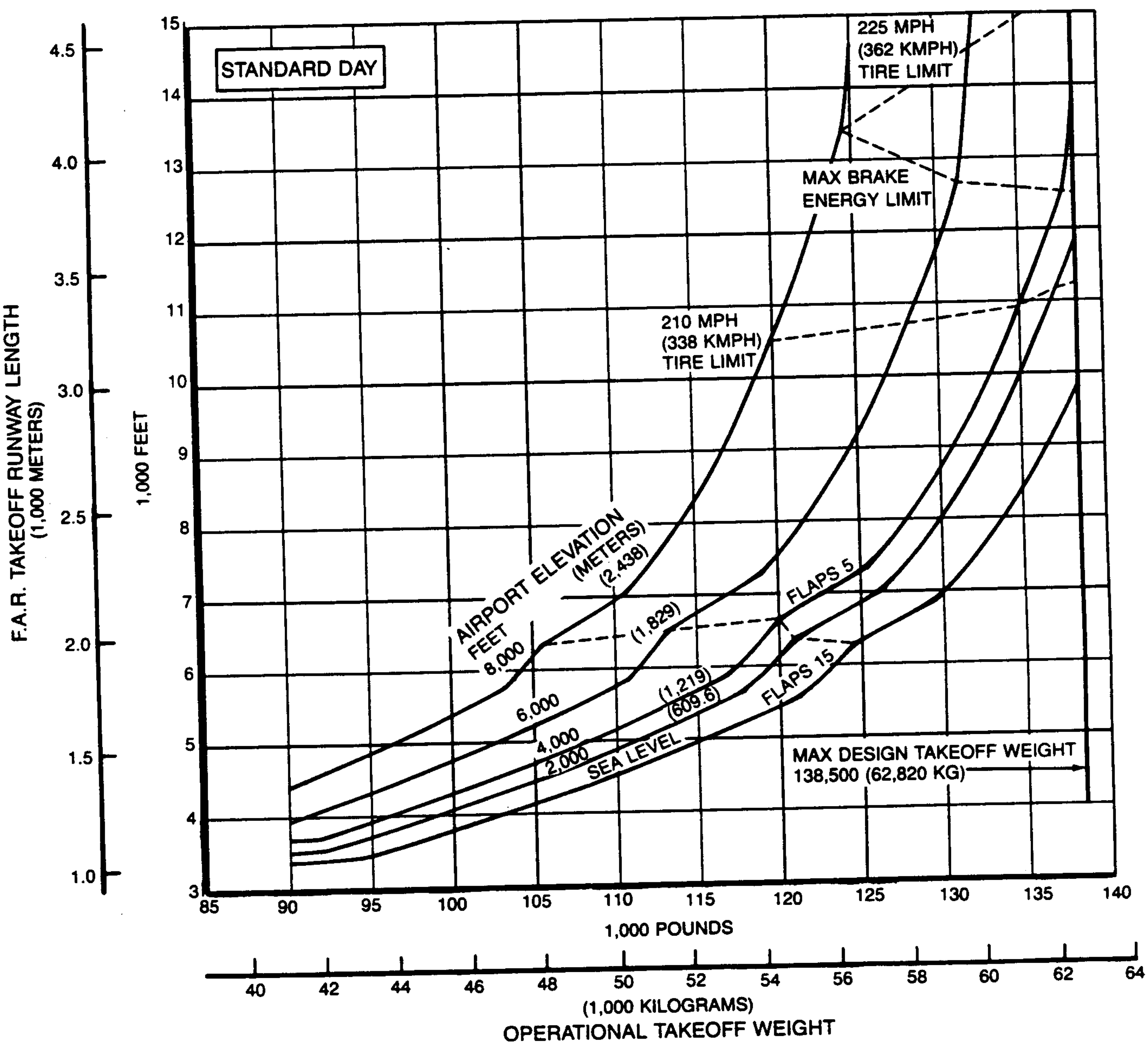
MODEL 737-400

NOTES:
- DOMESTIC RESERVES
- CFM56-3B-1 ENGINES
- STANDARD DAY, ZERO WIND
- LRC AT 31,000/35,000 FT
- CONSULT WITH USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN



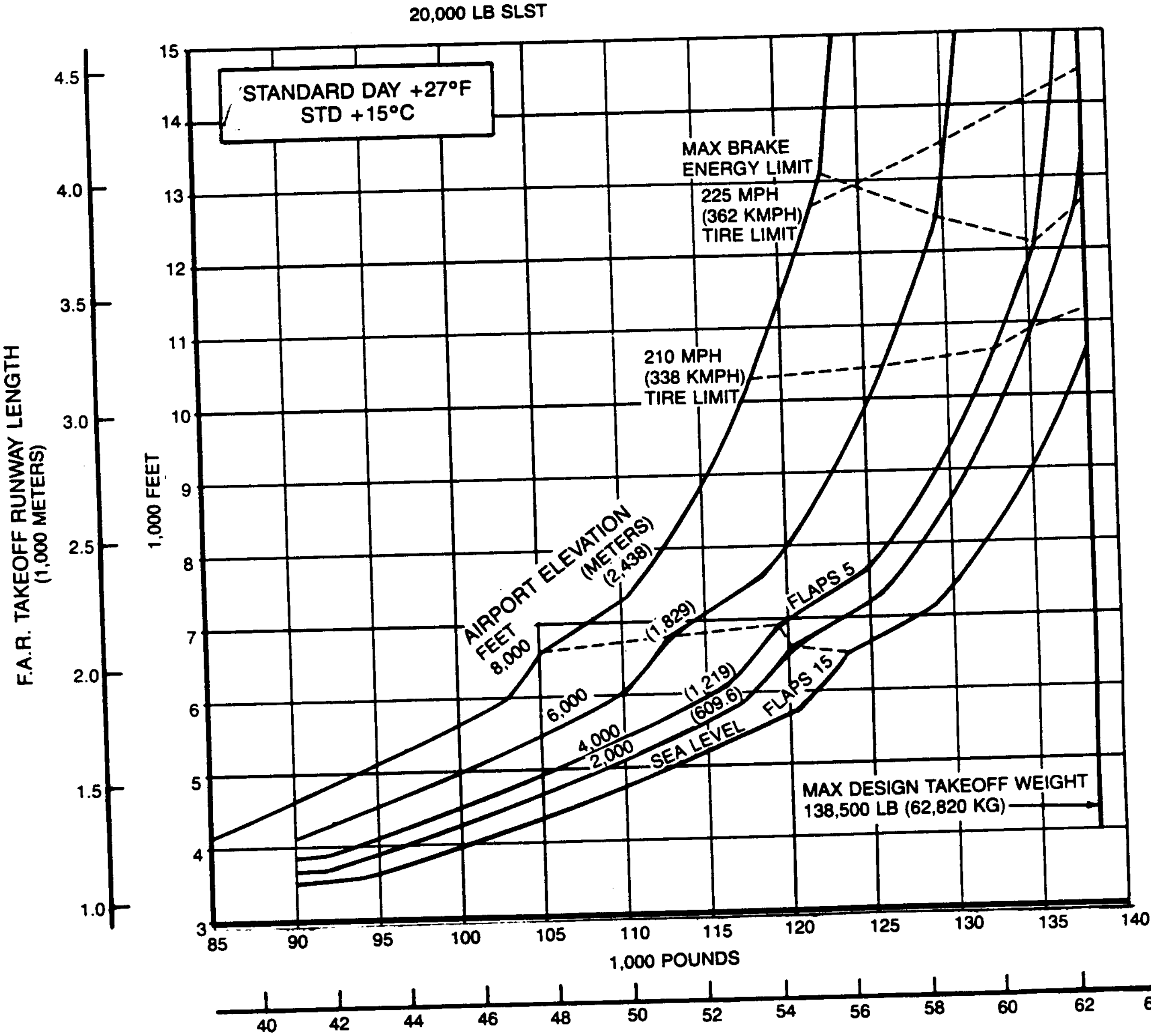
3.2.3 PAYLOAD/RANGE FOR LONG-RANGE CRUISE
MODEL 737-500

NOTES:
- NO ENGINE AIRBLEED FOR AIR CONDITIONING
- ZERO WIND, ZERO RUNWAY GRADIENT
- CONSULT WITH USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
- CFM56-3B-1 ENGINES RATED AT 20,000 LB SLST



3.3.1 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS—STANDARD DAY
MODEL 737-300 (CFM56-3B-1 ENGINES, 20,000 LB SLST)

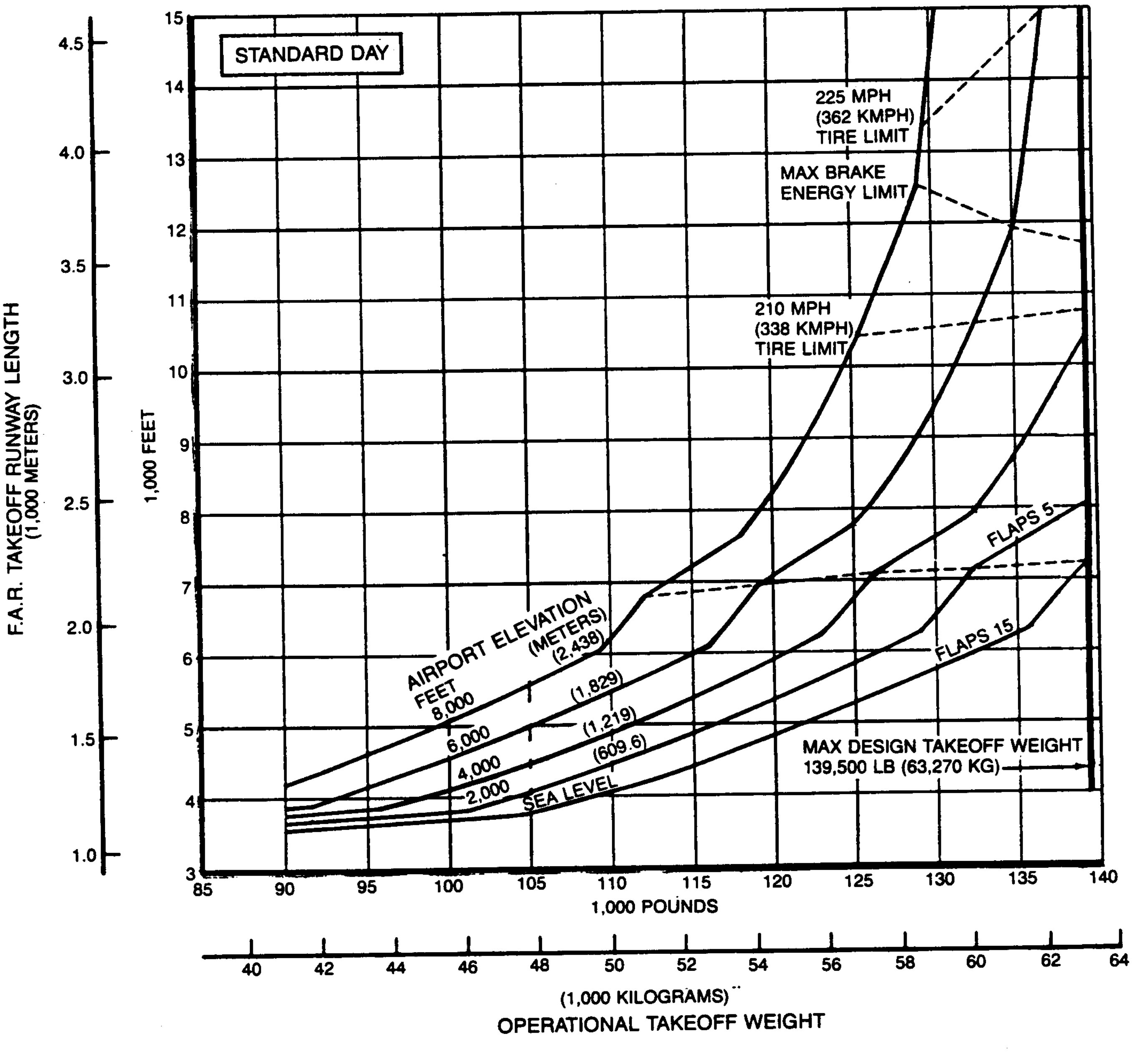
NOTES:
- NO ENGINE AIRBLEED FOR AIR CONDITIONING
- ZERO WIND, ZERO RUNWAY GRADIENT
- CONSULT WITH USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
- CFM56-3B-1 ENGINES RATED AT 20,000 LB SLST



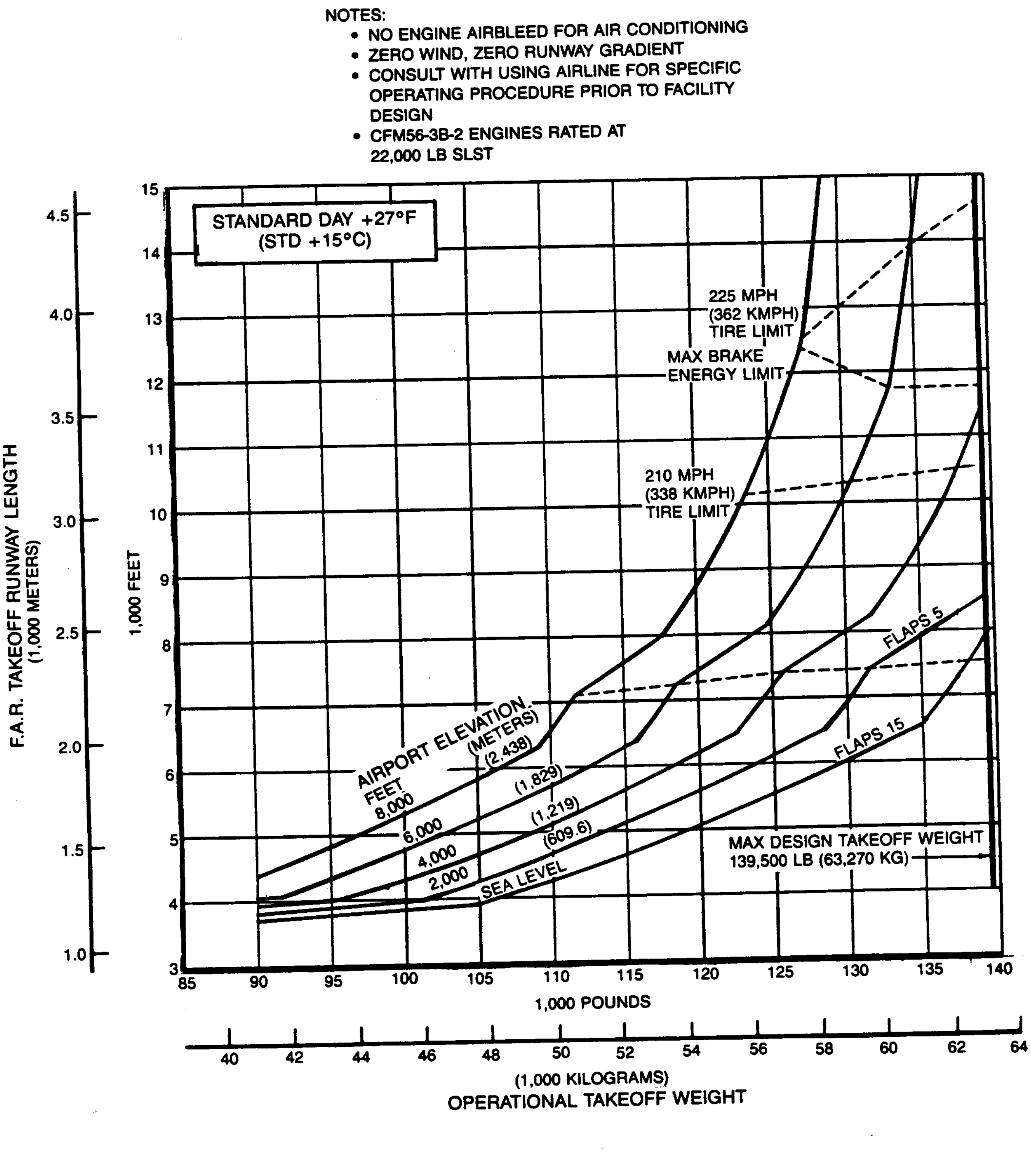
3.3.2 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS—STANDARD DAY + 27°F (STD + 15°C)

MODEL 737-300 (CFM56-3B-1 ENGINES, 20,000 LB SLST)

NOTES:
- NO ENGINE AIRBLEED FOR AIR CONDITIONING
- ZERO WIND, ZERO RUNWAY GRADIENT
- CONSULT WITH USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
- CFM56-3B-2 ENGINES RATED AT 22,000 LB SLST



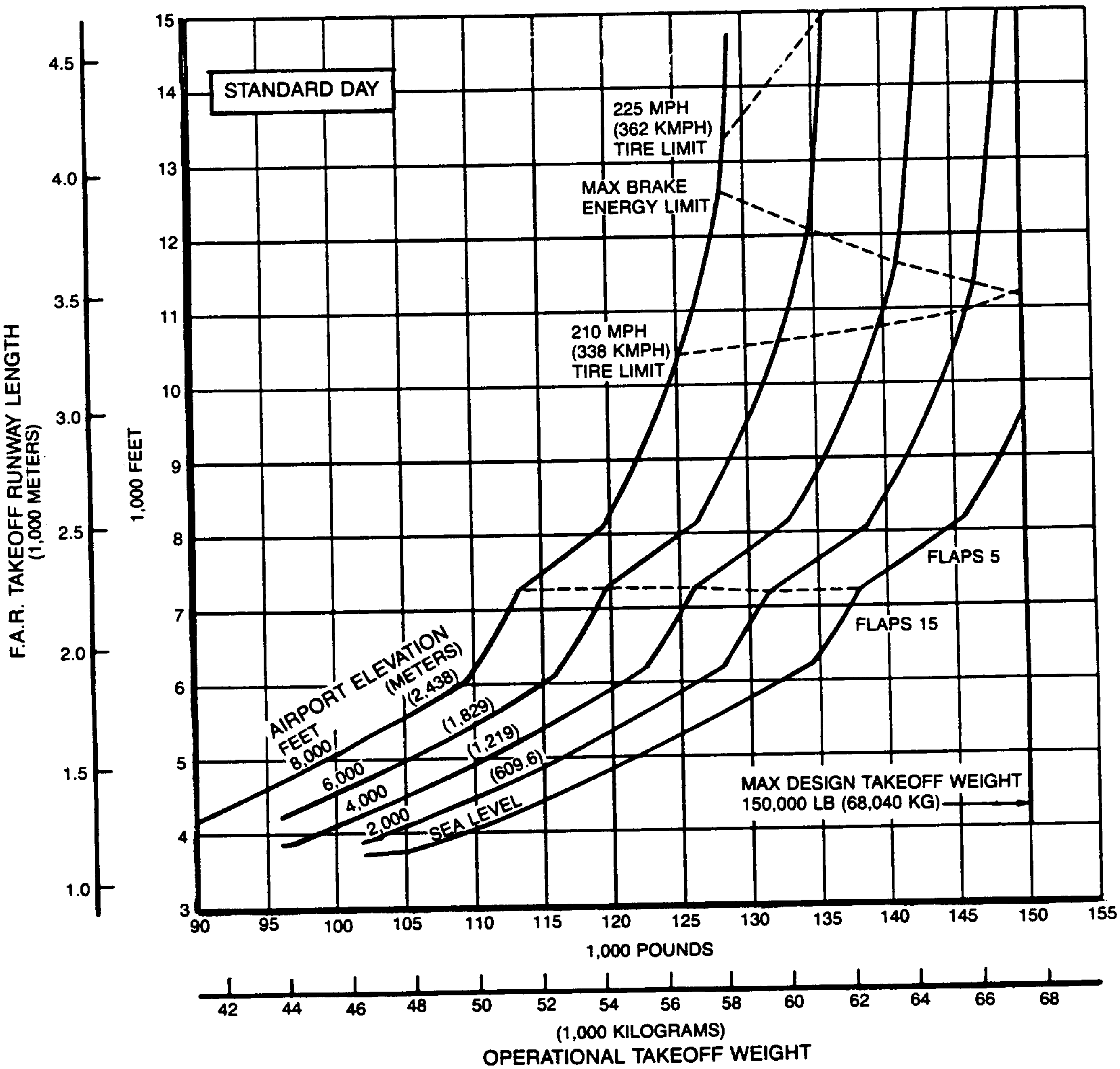
3.3.3 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS—STANDARD DAY
MODEL 737-300 (CFM56-3B-2 ENGINES, 22,000 LB SLST)



3.3.4 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS—STANDARD DAY + 27°F (STD + 15°C)
MODEL 737-300 (CFM56-3B-2 ENGINES, 22,000 LB SLST)

NOTES:

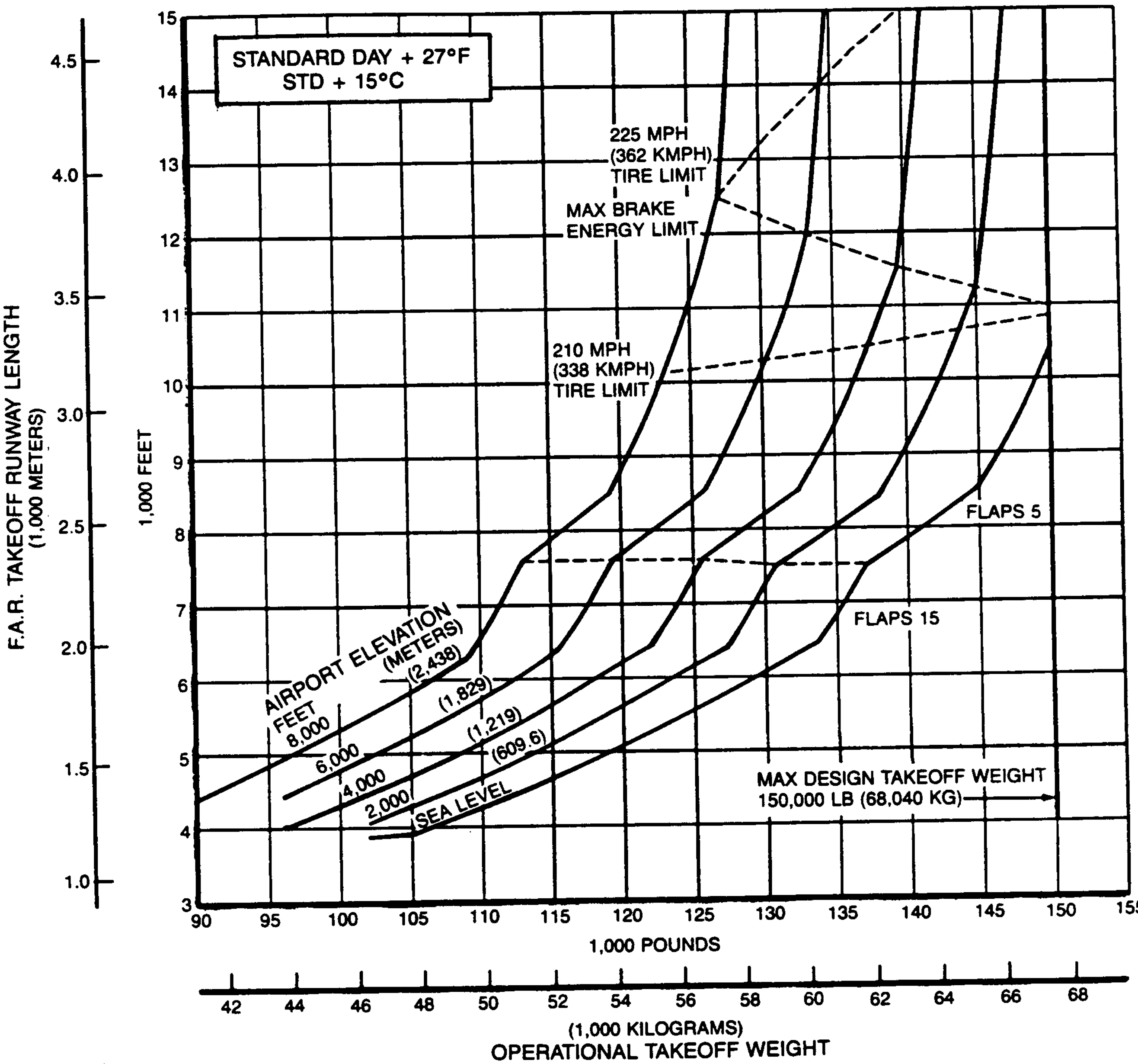
- NO ENGINE AIRBLEED FOR AIR CONDITIONING
- ZERO WIND, ZERO RUNWAY GRADIENT
- CONSULT WITH USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
- CFM56-3B-2 ENGINES RATED AT 22,000 LB SLST



3.3.5 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS—STANDARD DAY

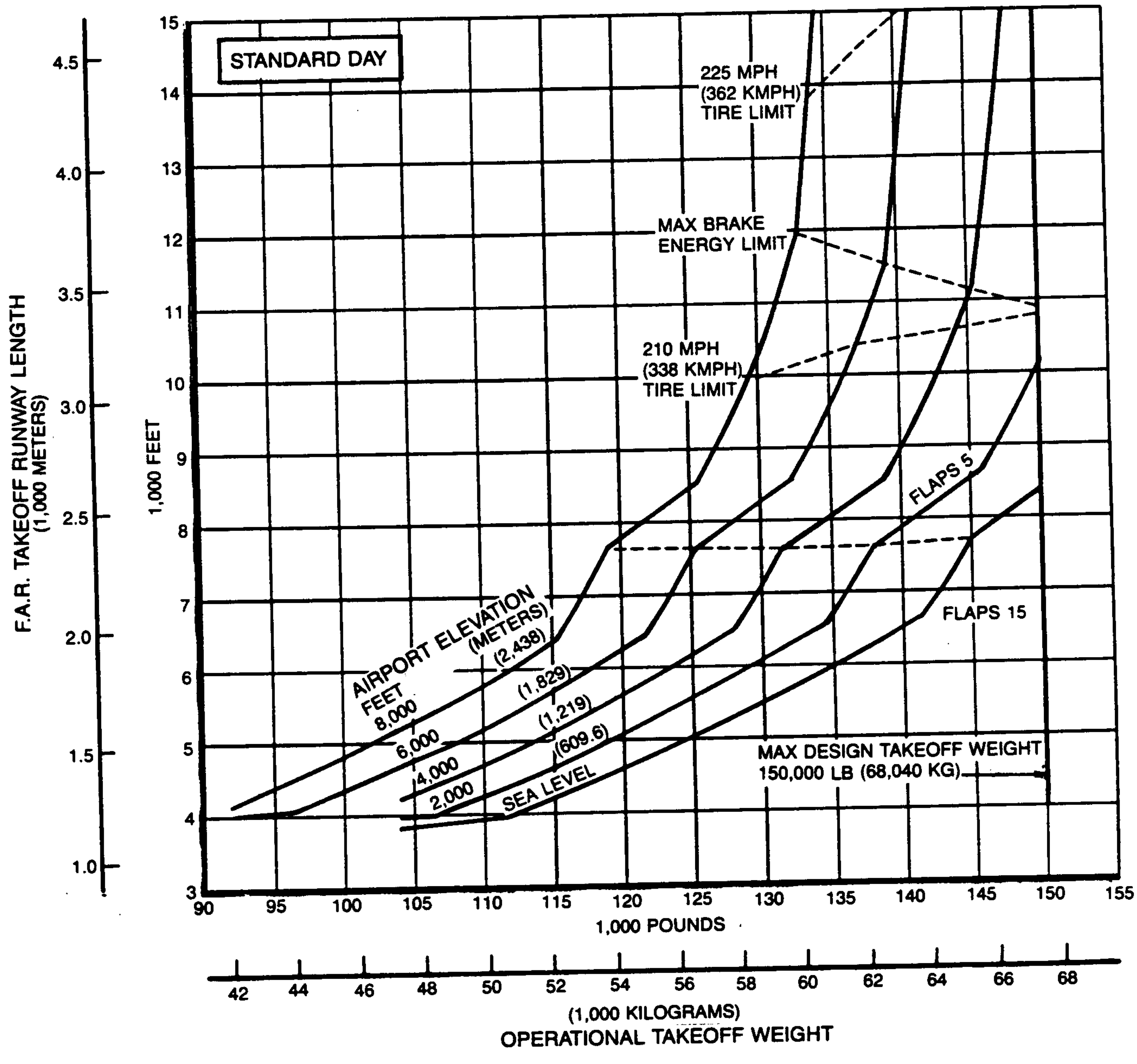
MODEL 737-400 (CFM56-3B-2 ENGINES, 22,000 LB SLST)

NOTES:
- NO ENGINE AIRBLEED FOR AIR CONDITIONING
- ZERO WIND, ZERO RUNWAY GRADIENT
- CONSULT WITH USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
- CFM56-3B-2 ENGINES RATED AT 22,000 LB SLST



3.3.6 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS—STANDARD DAY + 27°F (STD + 15°C)
MODEL 737-400 (CFM56-3B-2 ENGINES, 22,000 LB SLST)

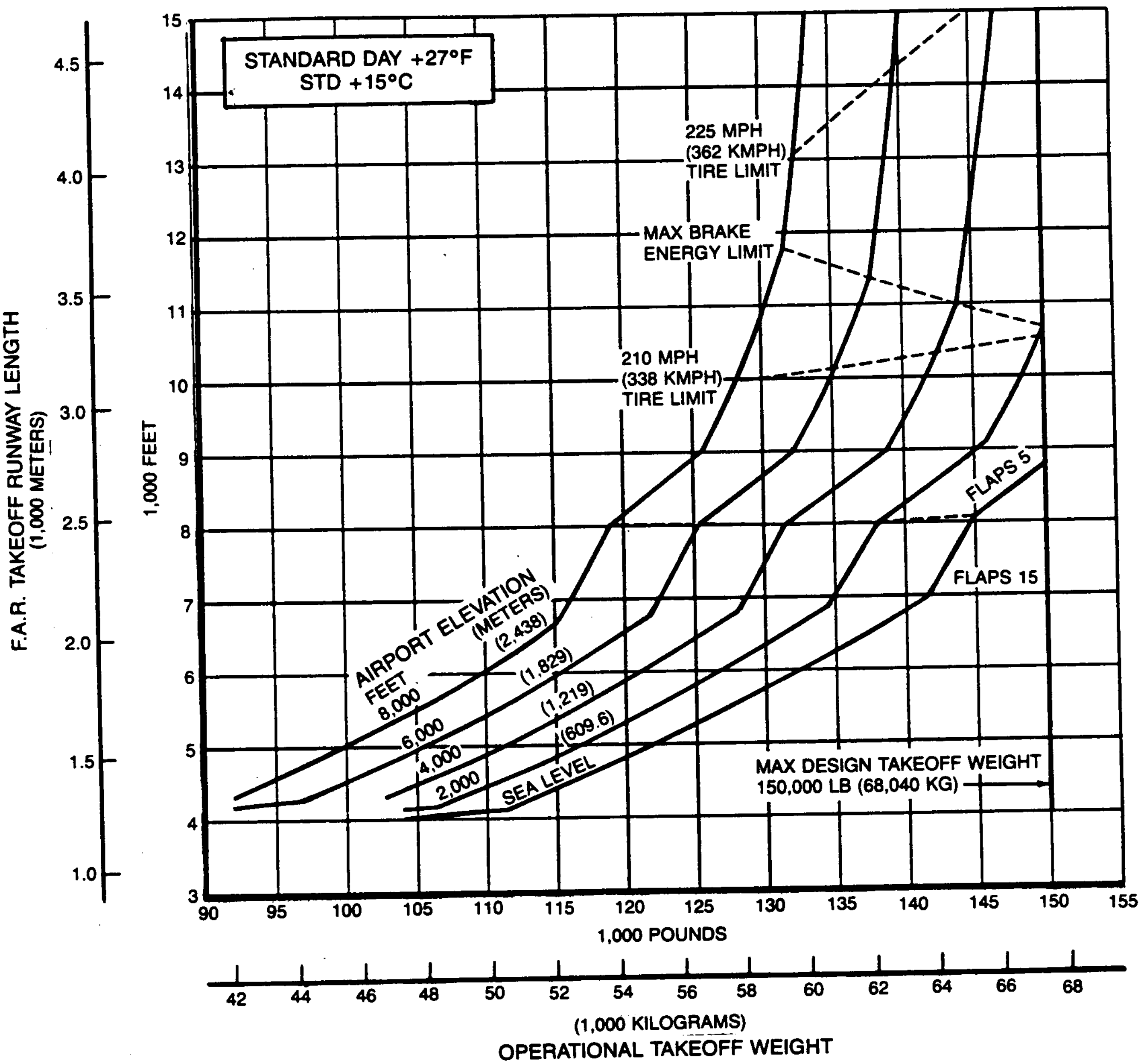
NOTES:
- NO ENGINE AIRBLEED FOR AIR CONDITIONING
- ZERO WIND, ZERO RUNWAY GRADIENT
- CONSULT WITH USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
- CFM56-3C-1 ENGINES RATED AT 23,500 LB SLST



3.3.7 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS—STANDARD DAY
MODEL 737-400 (CFM56-3C-1 ENGINES, 23,500 LB SLST)

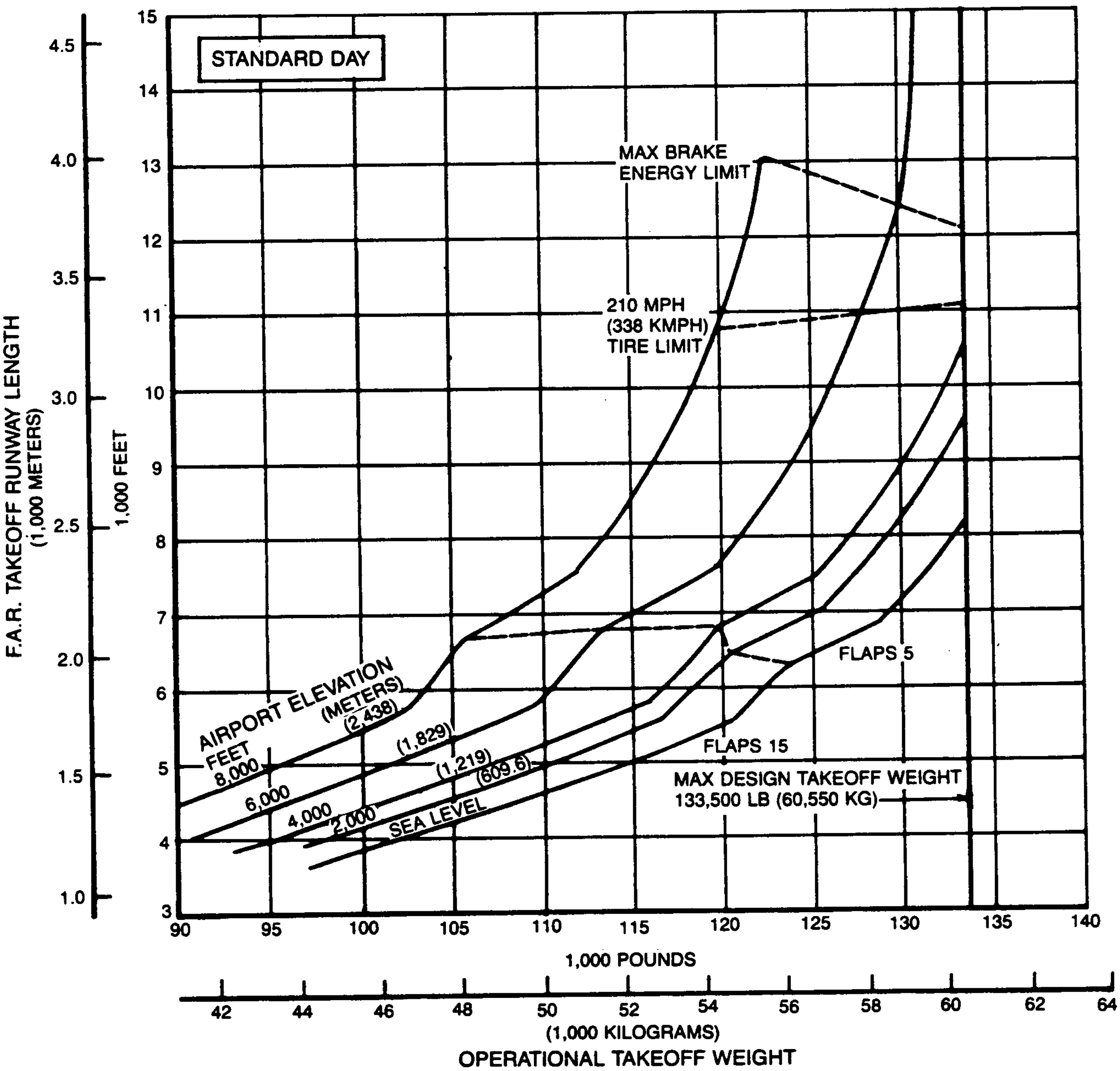
NOTES:

- NO ENGINE AIRBLEED FOR AIR CONDITIONING
- ZERO WIND, ZERO RUNWAY GRADIENT
- CONSULT WITH USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
- CFM56-3C-1 ENGINES RATED AT 23,500 LB SLST



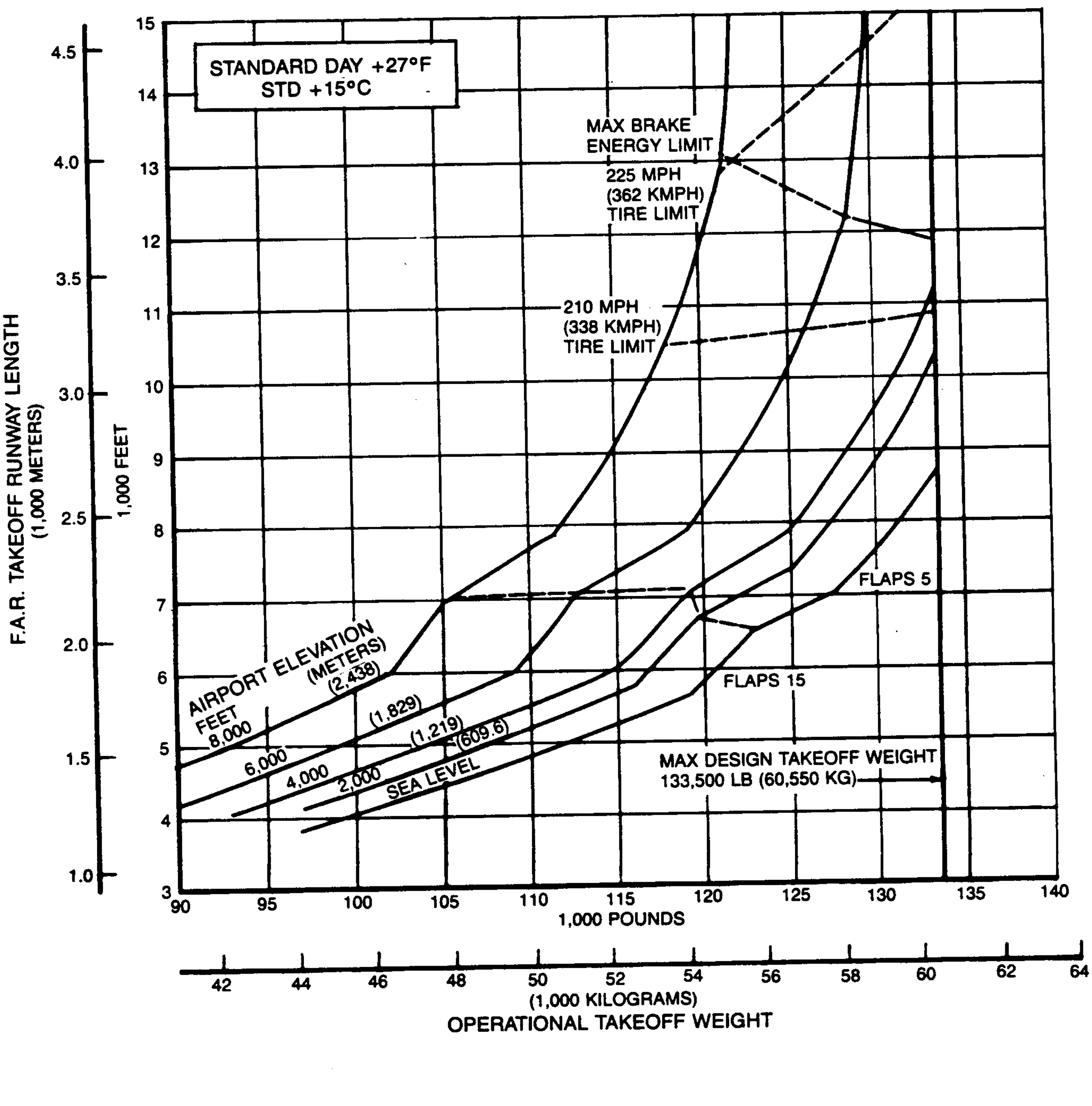
3.3.8 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS—STANDARD DAY + 27°F (STD + 15°C)
MODEL 737-400 (CFM56-3C-1 ENGINES, 23,500 LB SLST)

NOTES:
- NO ENGINE AIRBLEED FOR AIR CONDITIONING
- ZERO WIND, ZERO RUNWAY GRADIENT
- CONSULT WITH USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
- CFM56-3B-1 ENGINES RATED AT 20,000 LB SLST



3.3.9 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS—STANDARD DAY
MODEL 737-500 (CFM56-3B-1 ENGINES, 20,000 LB SLST)

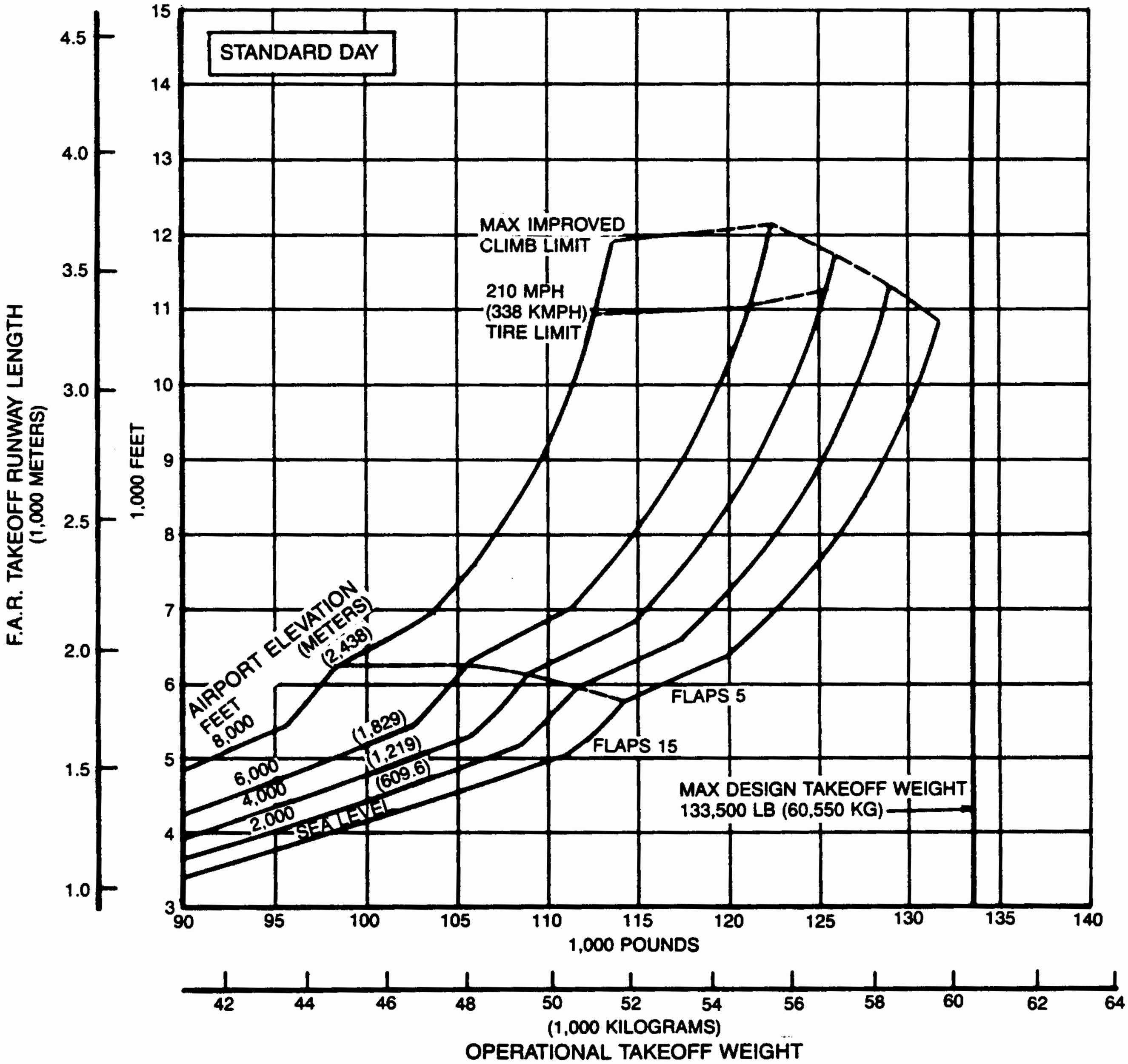
NOTES:
- NO ENGINE AIRBLEED FOR AIR CONDITIONING
- ZERO WIND, ZERO RUNWAY GRADIENT
- CONSULT WITH USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
- CFM56-3B-1 ENGINES RATED AT 20,000 LB SLST



3.3.10 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS—STANDARD DAY +27°F (STD +15°C)

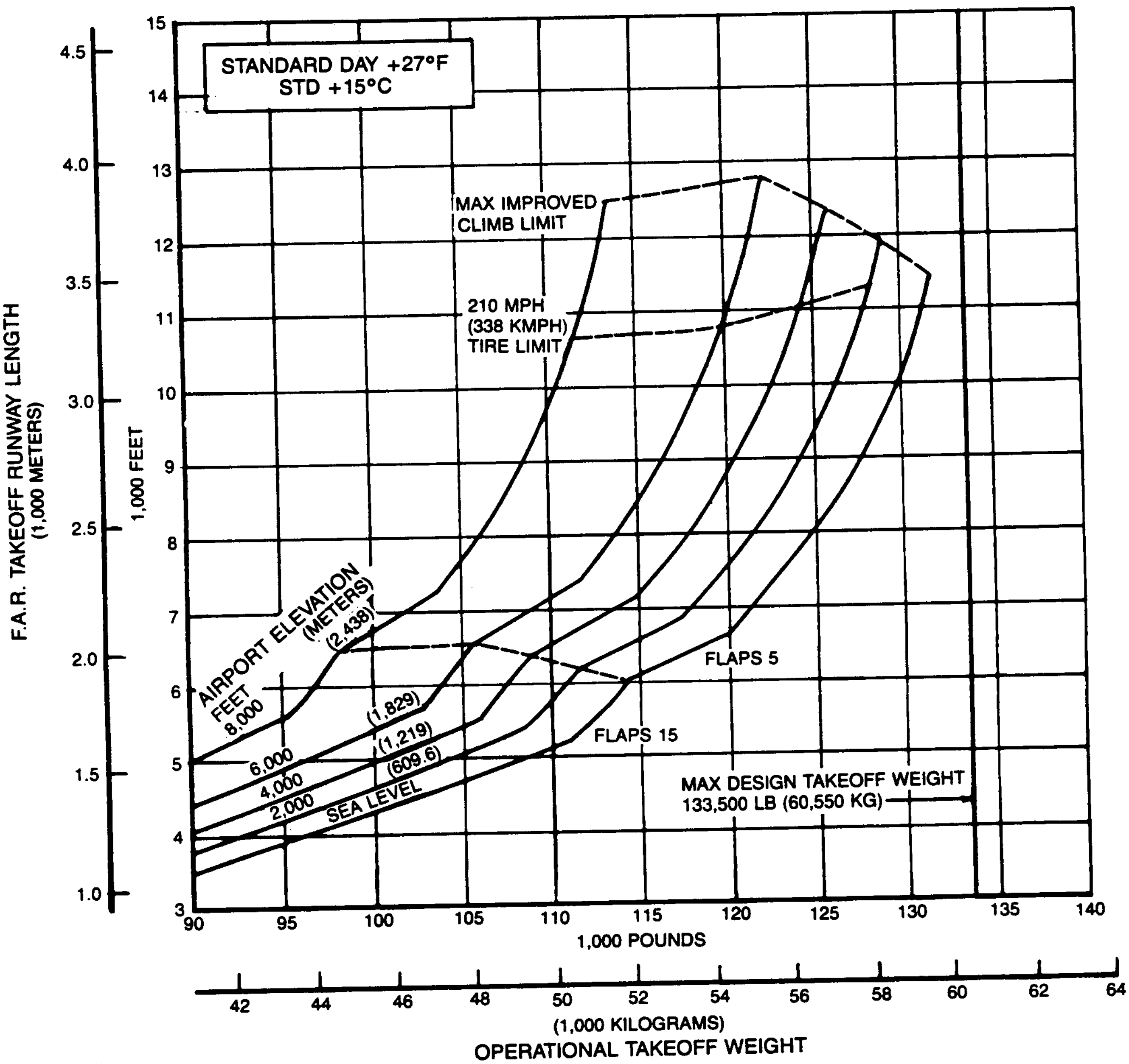
MODEL 737-500 (CFM56-3B-1 ENGINES, 20,000 LB SLST)

NOTES:
- NO ENGINE AIRBLEED FOR AIR CONDITIONING
- ZERO WIND, ZERO RUNWAY GRADIENT
- CONSULT WITH USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
- CFM56-3B-1 ENGINES RATED AT 18,500 LB SLST



3.3.11 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS—STANDARD DAY
MODEL 737-500 (CFM56-3B-1 ENGINES, 18,500 LB SLST)

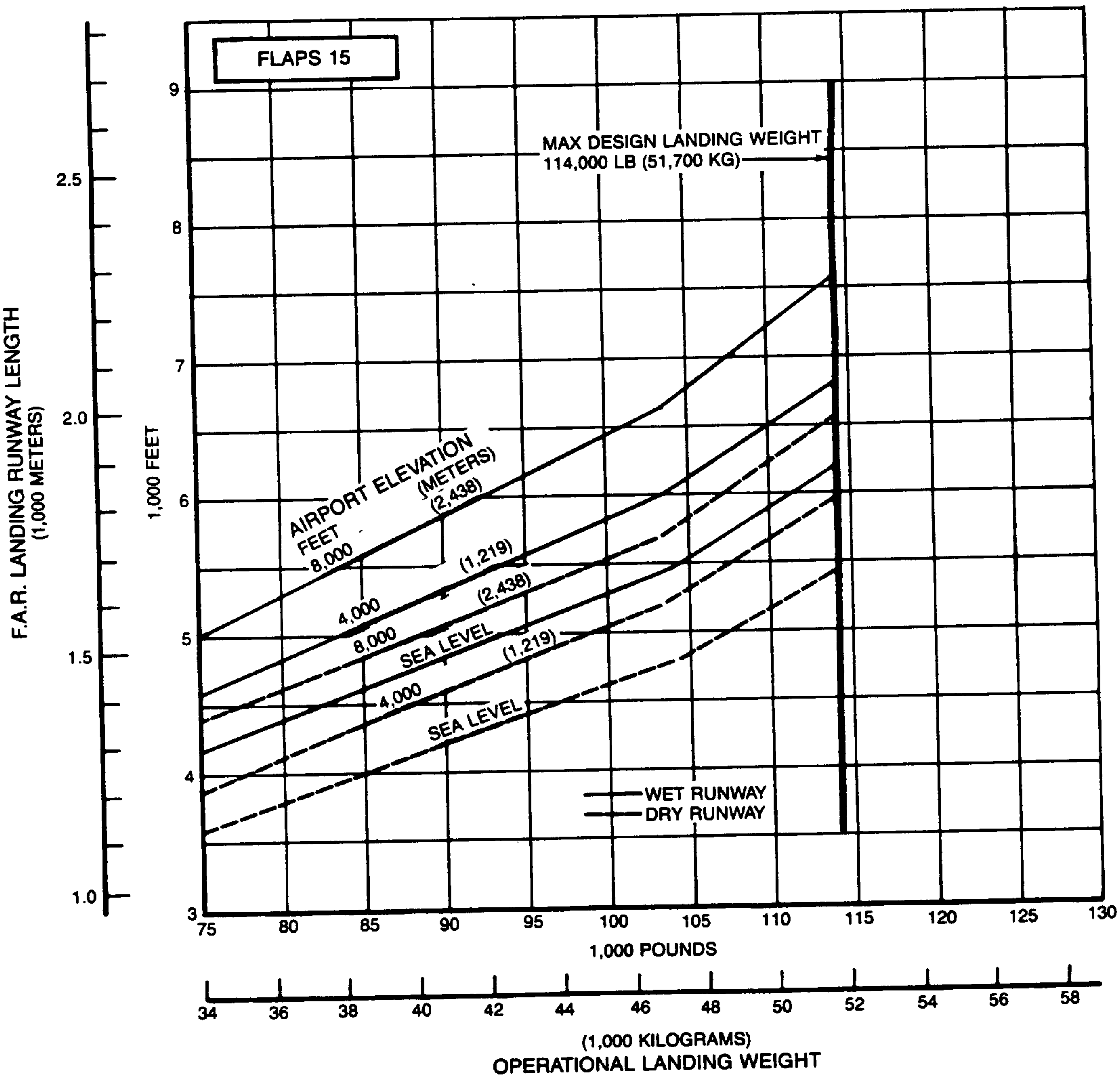
NOTES:
- NO ENGINE AIRBLEED FOR AIR CONDITIONING
- ZERO WIND, ZERO RUNWAY GRADIENT
- CONSULT WITH USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
- CFM56-3B-1 ENGINES RATED AT 18,500 LB SLST



3.3.12 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS—STANDARD DAY +27°F (STD +15°C)
MODEL 737-500 (CFM56-3B-1 ENGINES, 18,500 LB SLST)

NOTES:

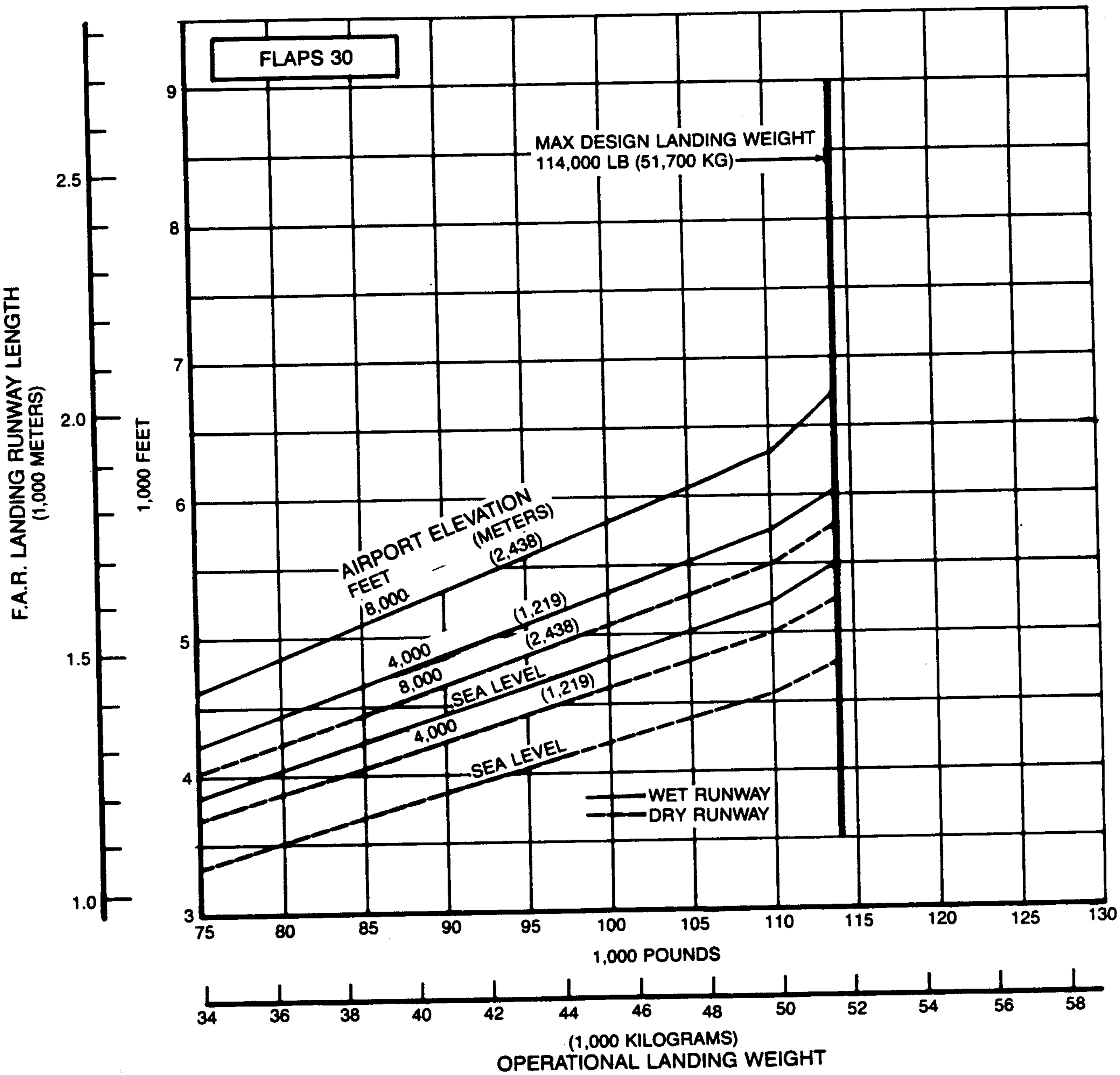
- $V_{APP} = 1.3V_S$
- ZERO WIND, ZERO RUNWAY GRADIENT
- FLAP POSITION 15
- AUTOMATIC SPEED BRAKES
- CONSULT WITH USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN



3.4.1 F.A.R. LANDING RUNWAY LENGTH REQUIREMENTS—FLAP POSITION 15

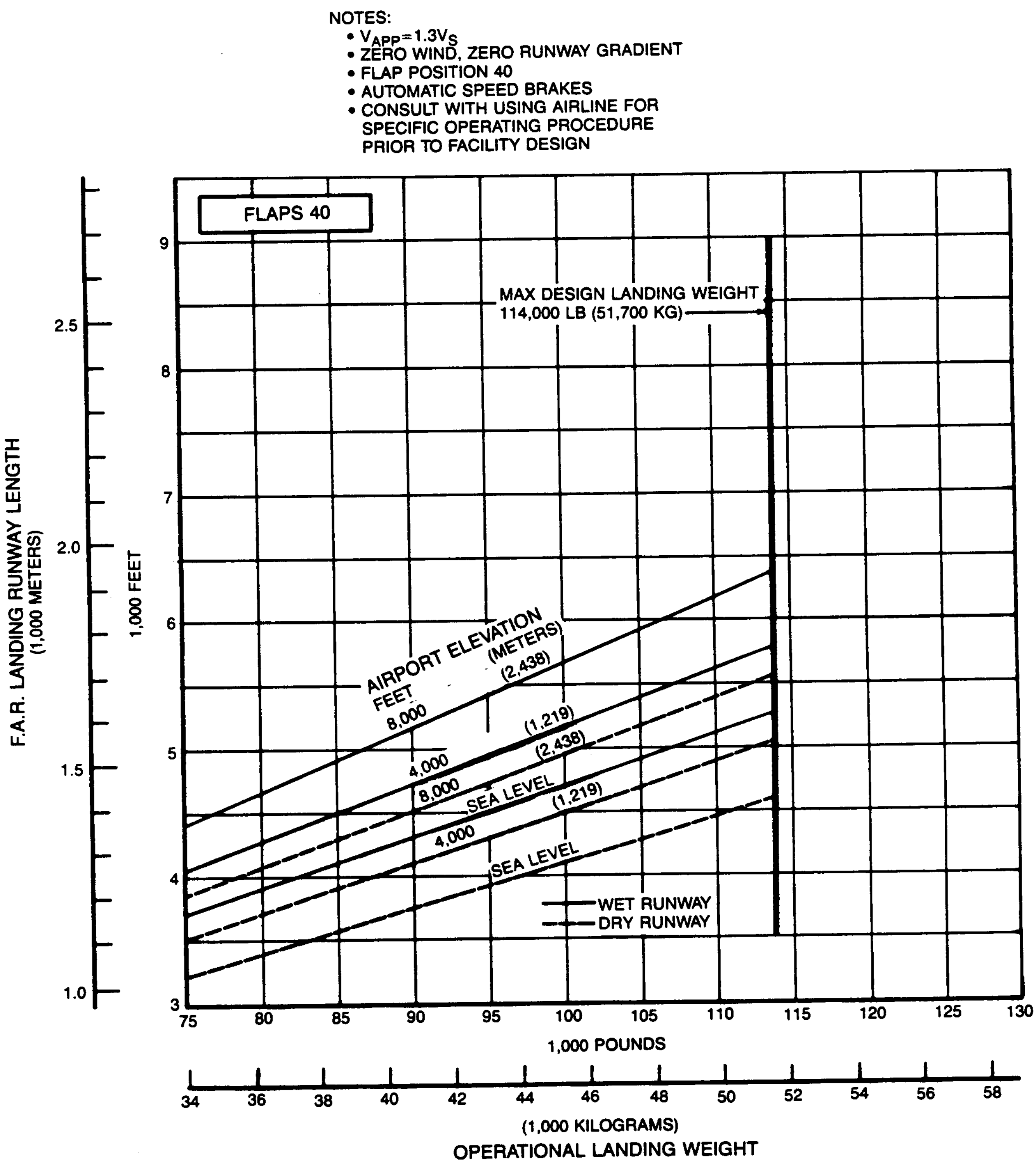
MODEL 737-300

NOTES:
- $V_{APP} = 1.3\ V_S$
- ZERO WIND, ZERO RUNWAY GRADIENT
- FLAP POSITION 30
- AUTOMATIC SPEED BRAKES
- CONSULT WITH USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN



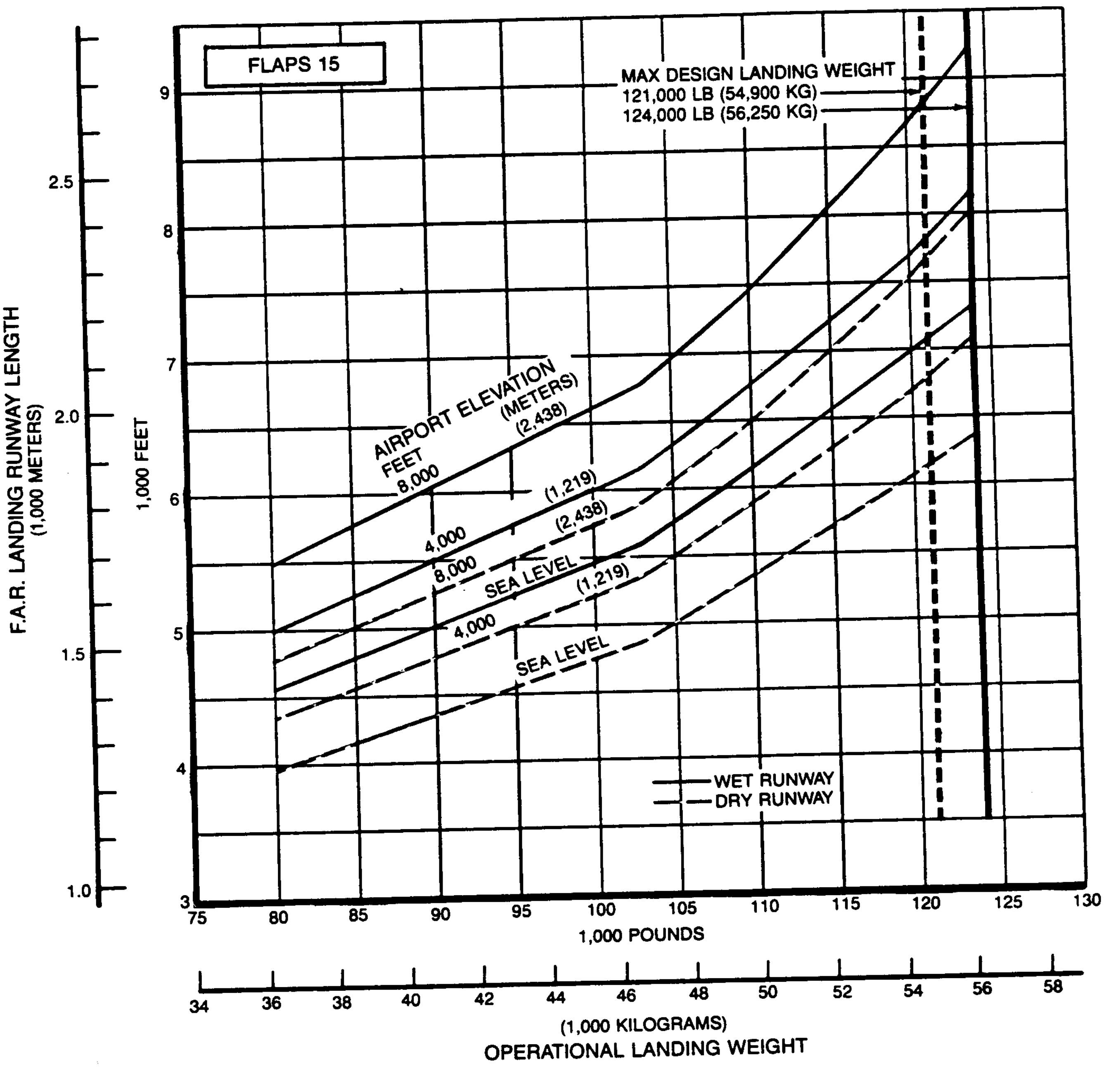
3.4.2 F.A.R. LANDING RUNWAY LENGTH REQUIREMENTS—FLAP POSITION 30

MODEL 737-300

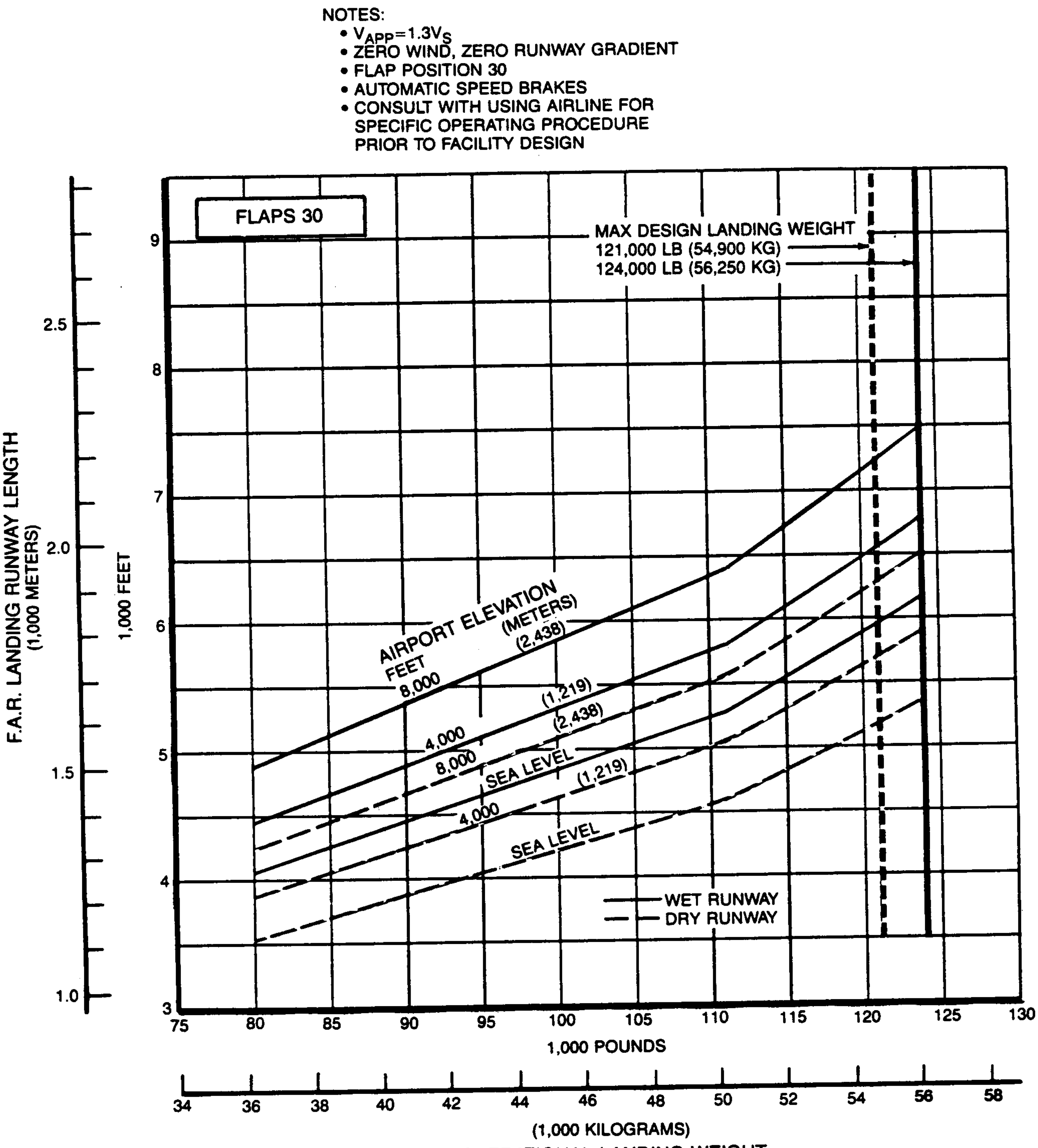


3.4.3 F.A.R. LANDING RUNWAY LENGTH REQUIREMENTS—FLAP POSITION 40
MODEL 737-300

NOTES:
- $V_{APP} = 1.3V_S$
- ZERO WIND, ZERO RUNWAY GRADIENT
- FLAP POSITION 15
- AUTOMATIC SPEED BRAKES
- CONSULT WITH USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN

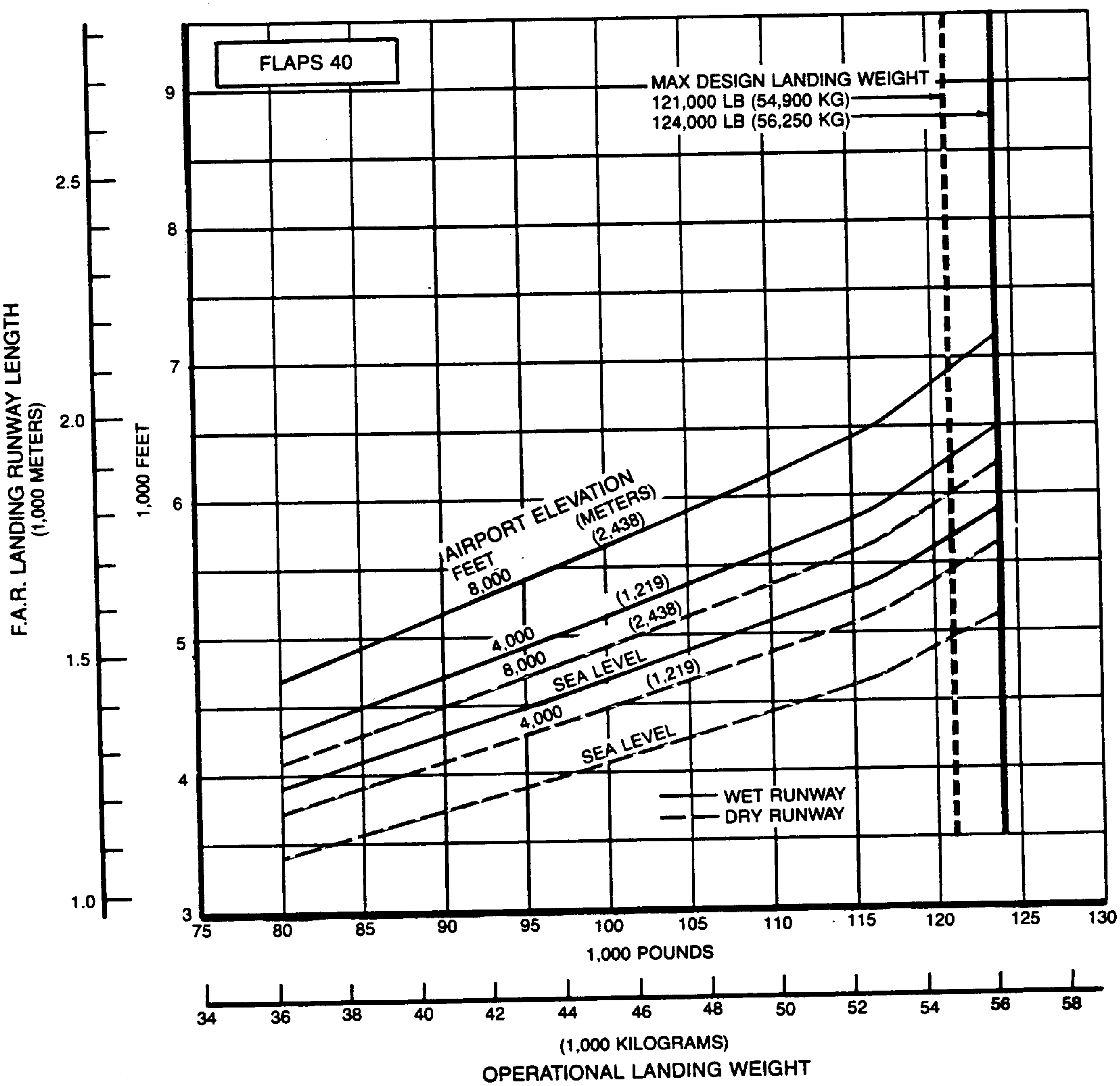


3.4.4 F.A.R. LANDING RUNWAY LENGTH REQUIREMENTS—FLAP POSITION 15
MODEL 737-400



3.4.5 F.A.R. LANDING RUNWAY LENGTH REQUIREMENTS—FLAP POSITION 30
MODEL 737-400

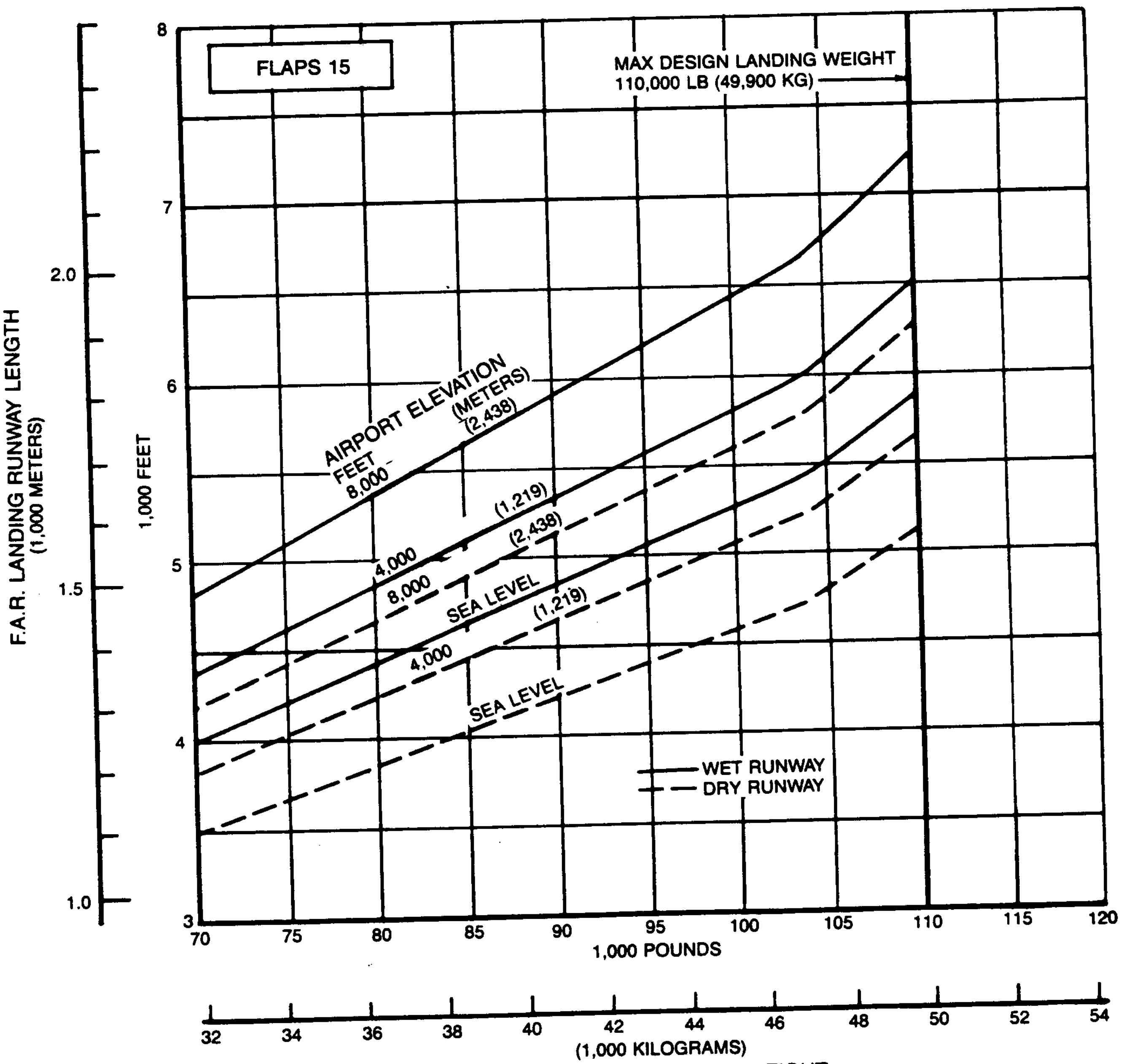
NOTES:
- V_{APP}=1.3 V_S
- ZERO WIND, ZERO RUNWAY GRADIENT
- FLAP POSITION 40
- AUTOMATIC SPEED BRAKES
- CONSULT WITH USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN



3.4.6 F.A.R. LANDING RUNWAY LENGTH REQUIREMENTS—FLAP POSITION 40

MODEL 737-400

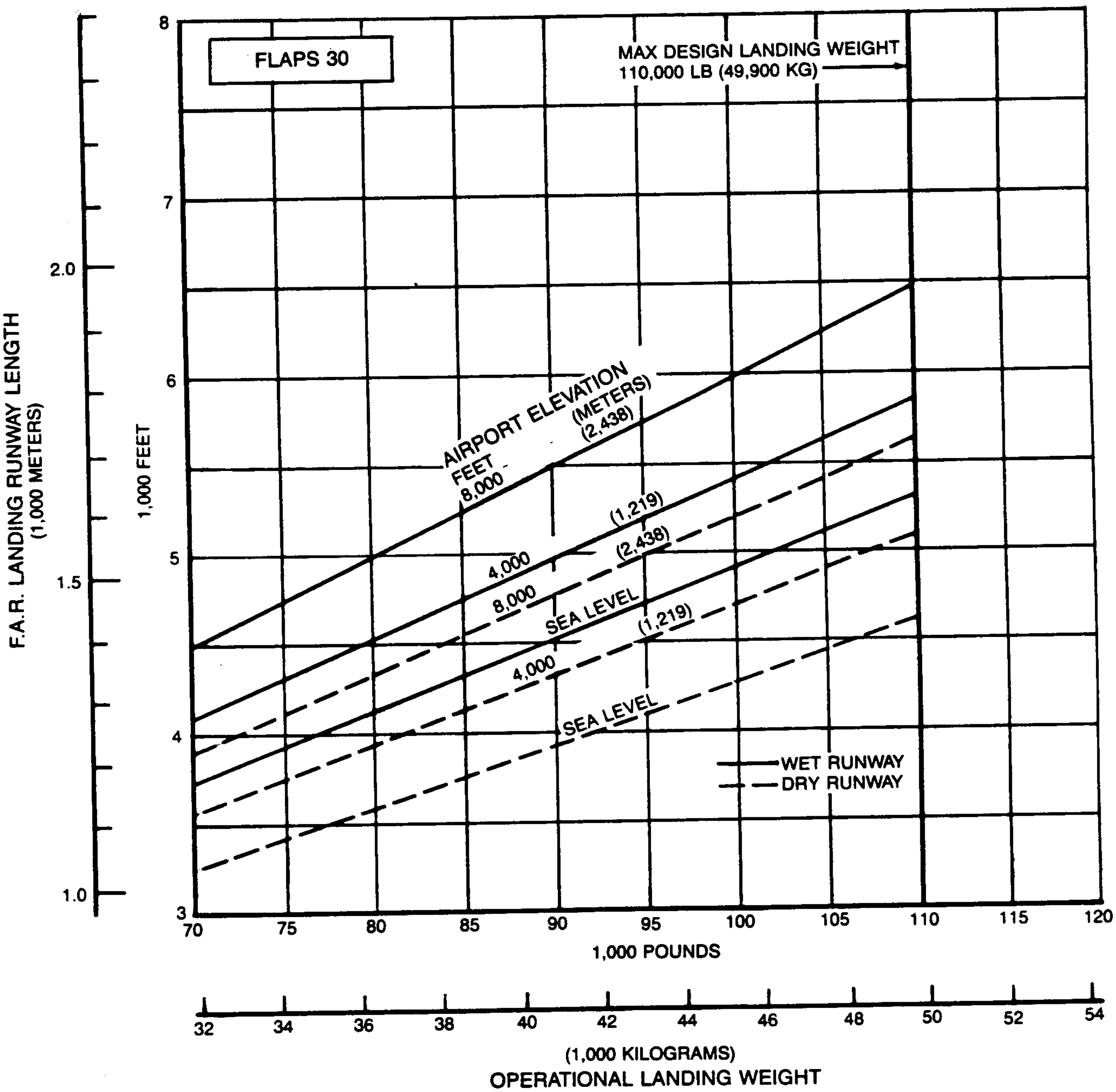
NOTES:
- $V_{APP}=1.3V_S$
- ZERO WIND, ZERO RUNWAY GRADIENT
- FLAP POSITION 15
- AUTOMATIC SPEED BRAKES
- CONSULT WITH USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN



3.4.7 F.A.R. LANDING RUNWAY LENGTH REQUIREMENTS—FLAP POSITION 15
MODEL 737-500

NOTES:

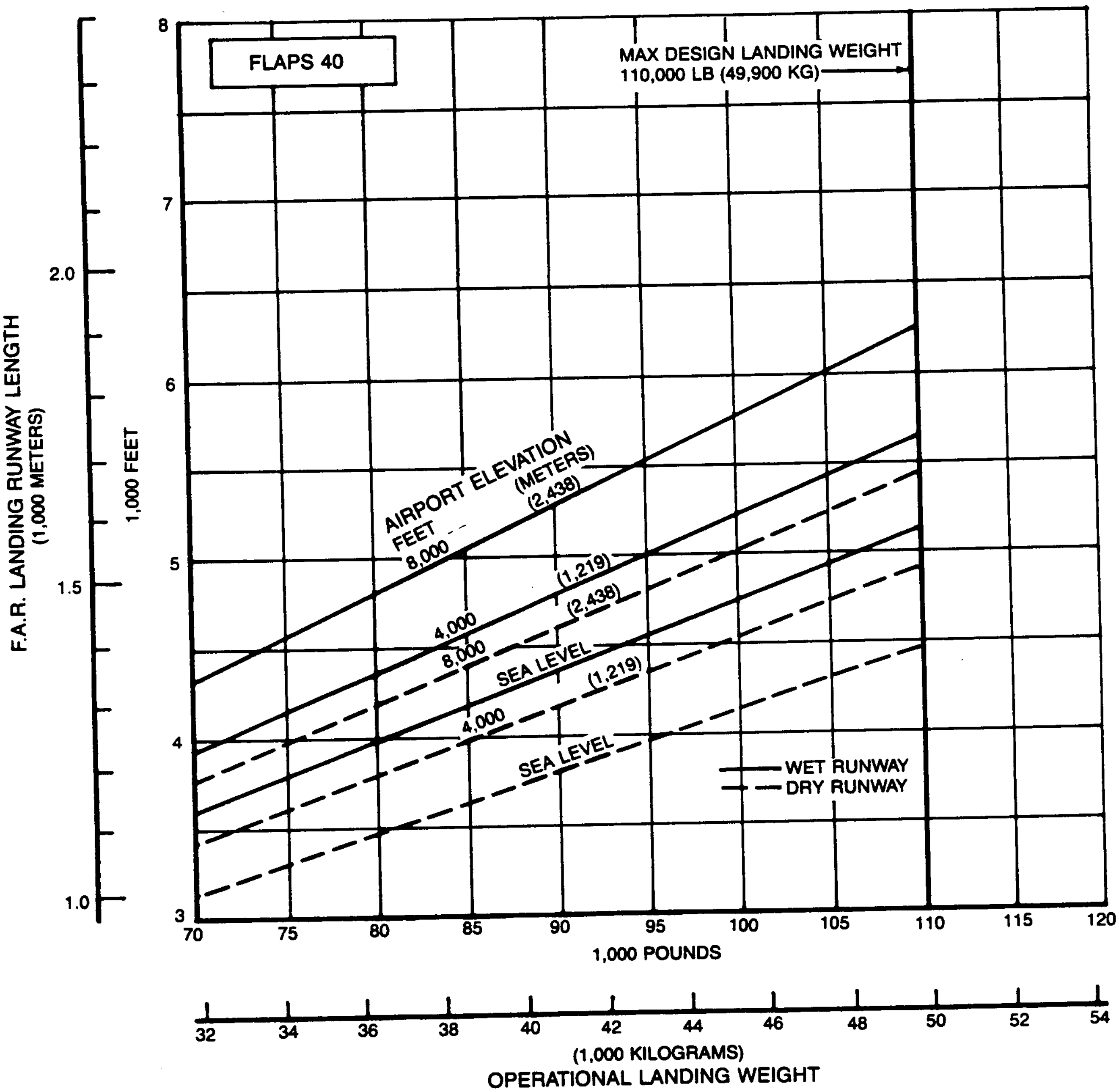
- $V_{APP} = 1.3V_S$
- ZERO WIND, ZERO RUNWAY GRADIENT
- FLAP POSITION 30
- AUTOMATIC SPEED BRAKES
- CONSULT WITH USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN



3.4.8 F.A.R. LANDING RUNWAY LENGTH REQUIREMENTS—FLAP POSITION 30

MODEL 737-500

NOTES:
- $V_{APP}=1.3V_S$
- ZERO WIND, ZERO RUNWAY GRADIENT
- FLAP POSITION 40
- AUTOMATIC SPEED BRAKES
- CONSULT WITH USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN



3.4.9 F.A.R. LANDING RUNWAY LENGTH REQUIREMENTS—FLAP POSITION 40
MODEL 737-500

4.0 GROUND MANEUVERING

4.0 GROUND MANEUVERING

4.1 General Information

The 737 landing gear system is a conventional tricycle-type. The main gear consists of two dual-wheel assemblies, one on each side of the fuselage. The nose gear is a dual-wheel assembly.

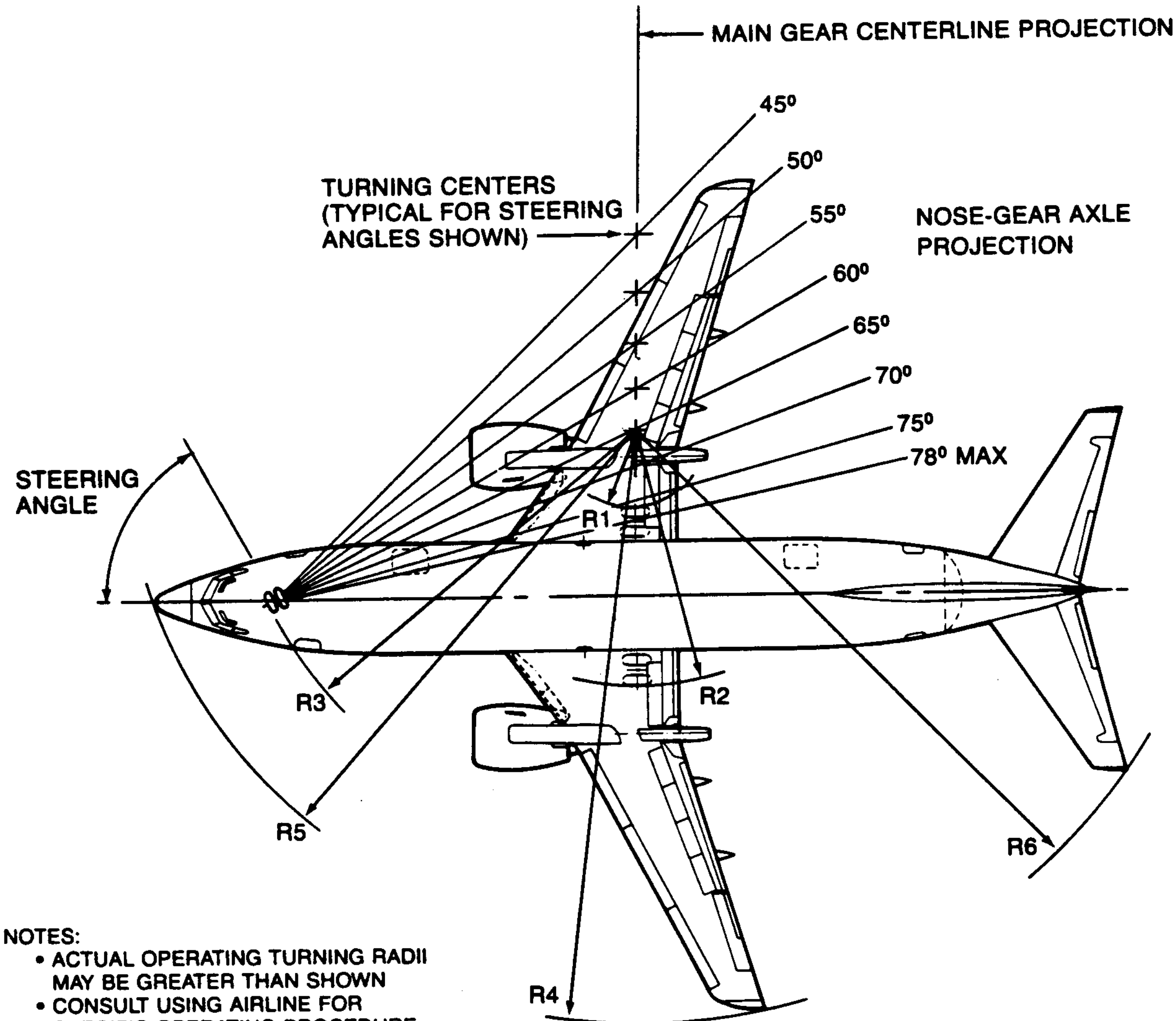
Sections 4.2 and 4.3 show turning radii for various nose-gear steering angles. Radii for the main and nose gears are measured from the outside edge of the tire, rather than from the center of the wheel strut.

Section 4.4 shows the pilot's visibility from the cockpit within the limits of ambinocular vision through the windows. Ambinocular vision is defined as the total field of vision seen by both eyes at the same time.

The runway-taxiway turns in Section 4.5 show a Model 737-300 on a 100-ft (30m) runway and 50-ft (15m) taxiway system. Runway and taxiway systems for jet aircraft larger than a 737-300, i.e. 150-ft (45m) runway and 75-ft (22.5m) taxiway, should provide adequate pavement clearance.

Section 4.6 shows minimum requirements for the 100-ft (30m) runway and 50-ft (15m) taxiway system. Holding aprons for larger jet aircraft should be adequate for the 737-300.

Sections 4.5 and 4.6 can be used for the 737-400 and 737-500 without any significant difference.

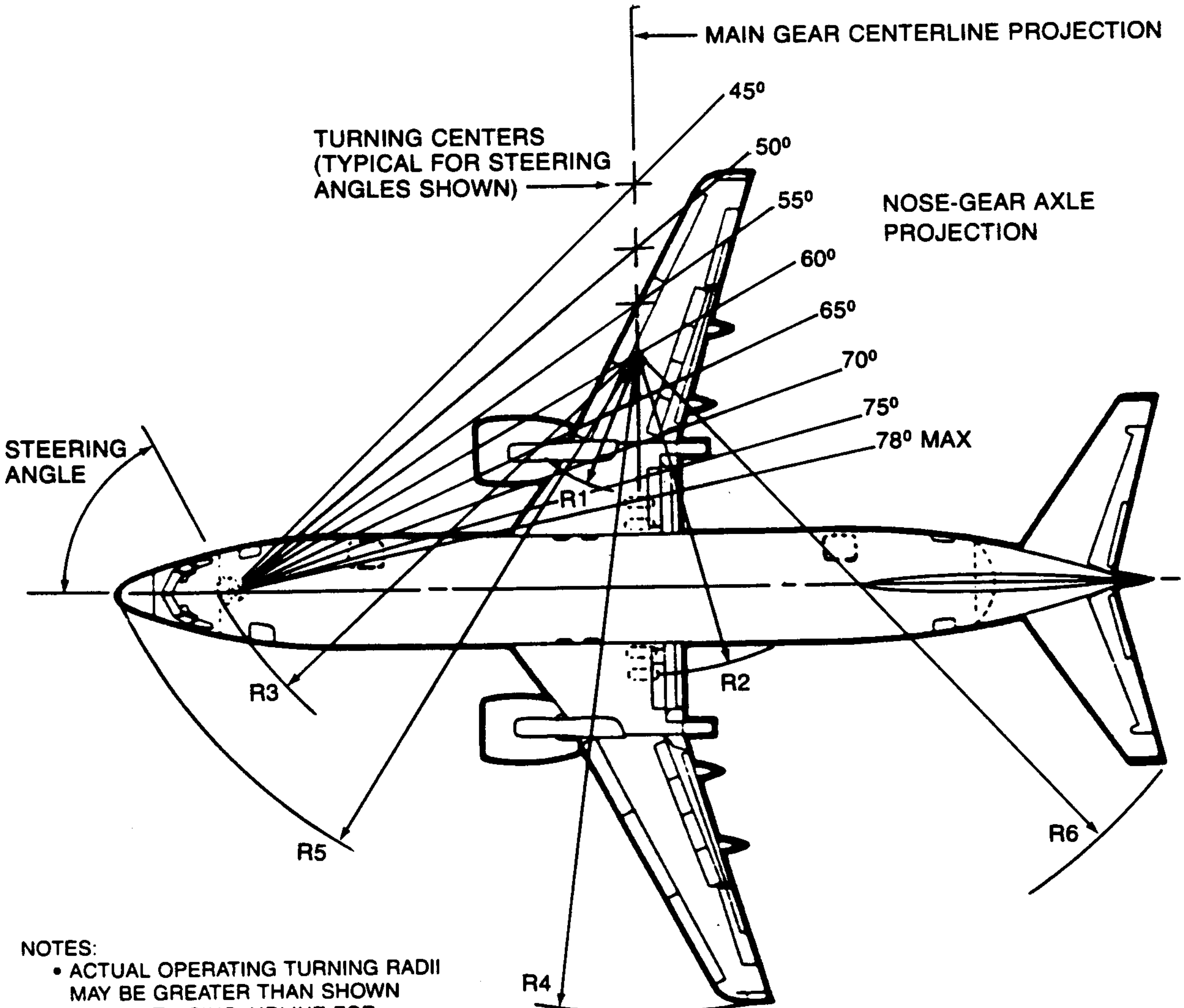


NOTES:
- ACTUAL OPERATING TURNING RADII MAY BE GREATER THAN SHOWN
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE

DIMENSIONS ROUNDED TO NEAREST FOOT AND 0.1 METER

STEERING ANGLE (DEGREES)	R1		R2		R3		R4		R5		R6	
	INNER GEAR		OUTER GEAR		NOSE GEAR		WING TIP		NOSE		TAIL	
	FT	M	FT	M	FT	M	FT	M	FT	M	FT	M
30	60	18.4	81	24.8	83	25.2	119	36.2	89	27.1	107	32.7
45	30	9.3	51	15.6	59	17.9	90	27.2	68	20.6	83	25.4
50	24	7.2	45	13.6	54	16.6	83	25.3	64	19.5	78	23.9
55	18	5.5	39	11.9	51	15.5	77	23.6	61	18.6	74	22.7
60	13	4.0	34	10.4	48	14.7	73	22.0	59	18.0	71	21.7
65	9	2.7	30	9.0	46	14.1	68	20.7	57	17.5	68	20.9
70	4	1.4	25	7.7	44	13.6	64	19.4	56	17.1	66	20.2
78 (MAXIMUM)	-2	-0.5	19	5.9	43	13.0	58	17.7	55	16.7	63	19.2

4.2.1 TURNING RADII—NO SLIP ANGLE
MODEL 737-300

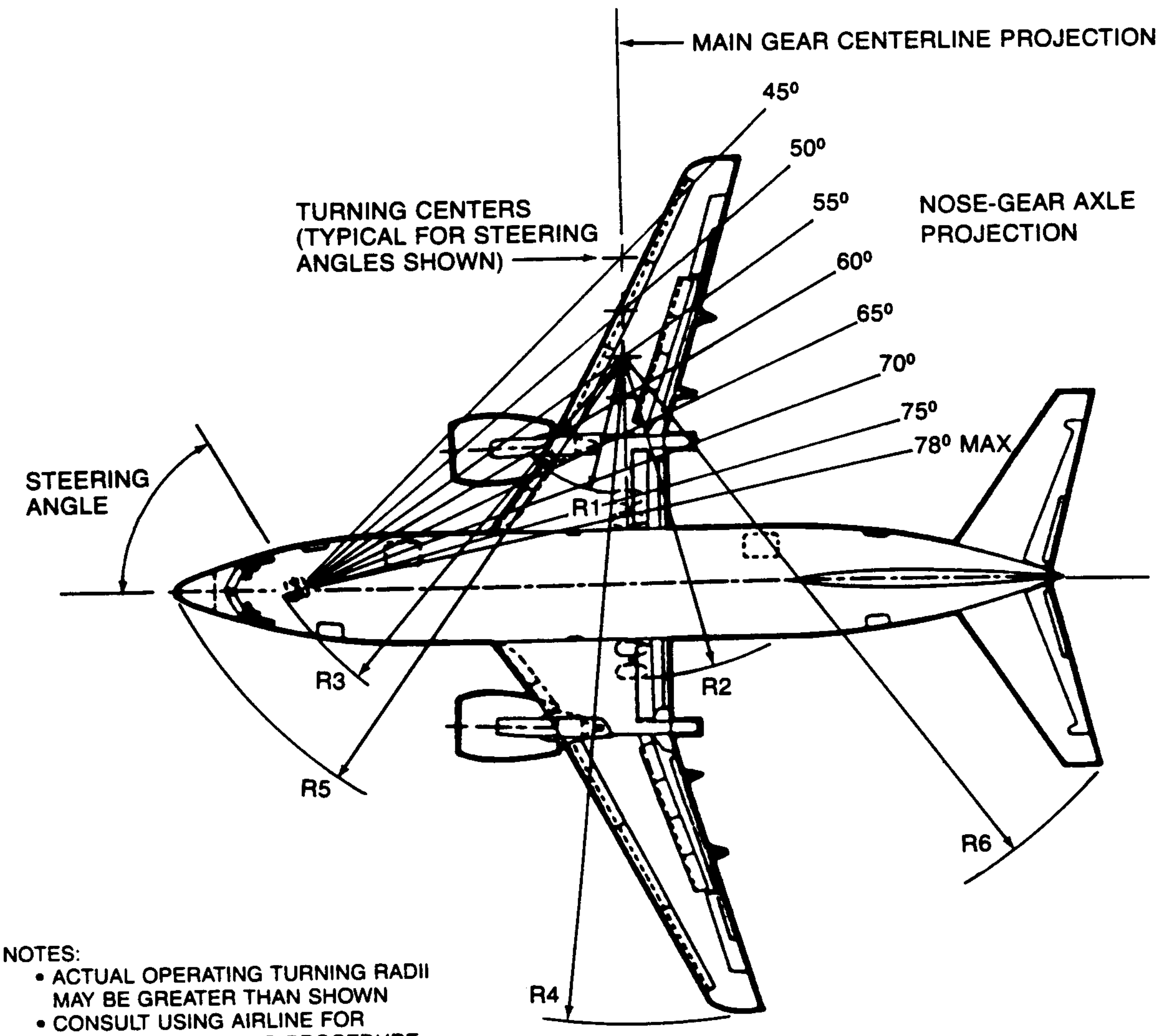


NOTES:
- ACTUAL OPERATING TURNING RADII MAY BE GREATER THAN SHOWN
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE

DIMENSIONS ROUNDED TO NEAREST FOOT AND 0.1 METER

STEERING ANGLE (DEGREES)	R1		R2		R3		R4		R5		R6	
	INNER GEAR		OUTER GEAR		NOSE GEAR		WING TIP		NOSE		TAIL	
	FT	M	FT	M	FT	M	FT	M	FT	M	FT	M
30	71	21.5	92	27.9	95	28.8	129	39.4	101	30.8	118	36.0
45	36	11.1	57	17.5	67	20.5	95	29.1	76	23.2	90	27.5
50	29	8.8	50	15.1	62	18.9	88	26.8	72	21.9	85	25.8
55	22	6.8	43	13.2	58	17.7	82	24.9	68	20.8	80	24.4
60	17	5.1	38	11.4	55	16.8	76	23.1	66	20.1	76	23.3
65	11	3.5	32	9.8	53	16.0	71	21.6	64	19.5	73	22.3
70	7	2.0	28	8.4	51	15.5	66	20.2	62	19.0	71	21.5
78 (MAXIMUM)	-1	-0.2	20	6.2	49	14.9	59	18.1	61	18.5	67	20.5

4.2.2 TURNING RADII—NO SLIP ANGLE
MODEL 737-400



NOTES:
- ACTUAL OPERATING TURNING RADII MAY BE GREATER THAN SHOWN
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE

DIMENSIONS ROUNDED TO NEAREST FOOT AND 0.1 METER

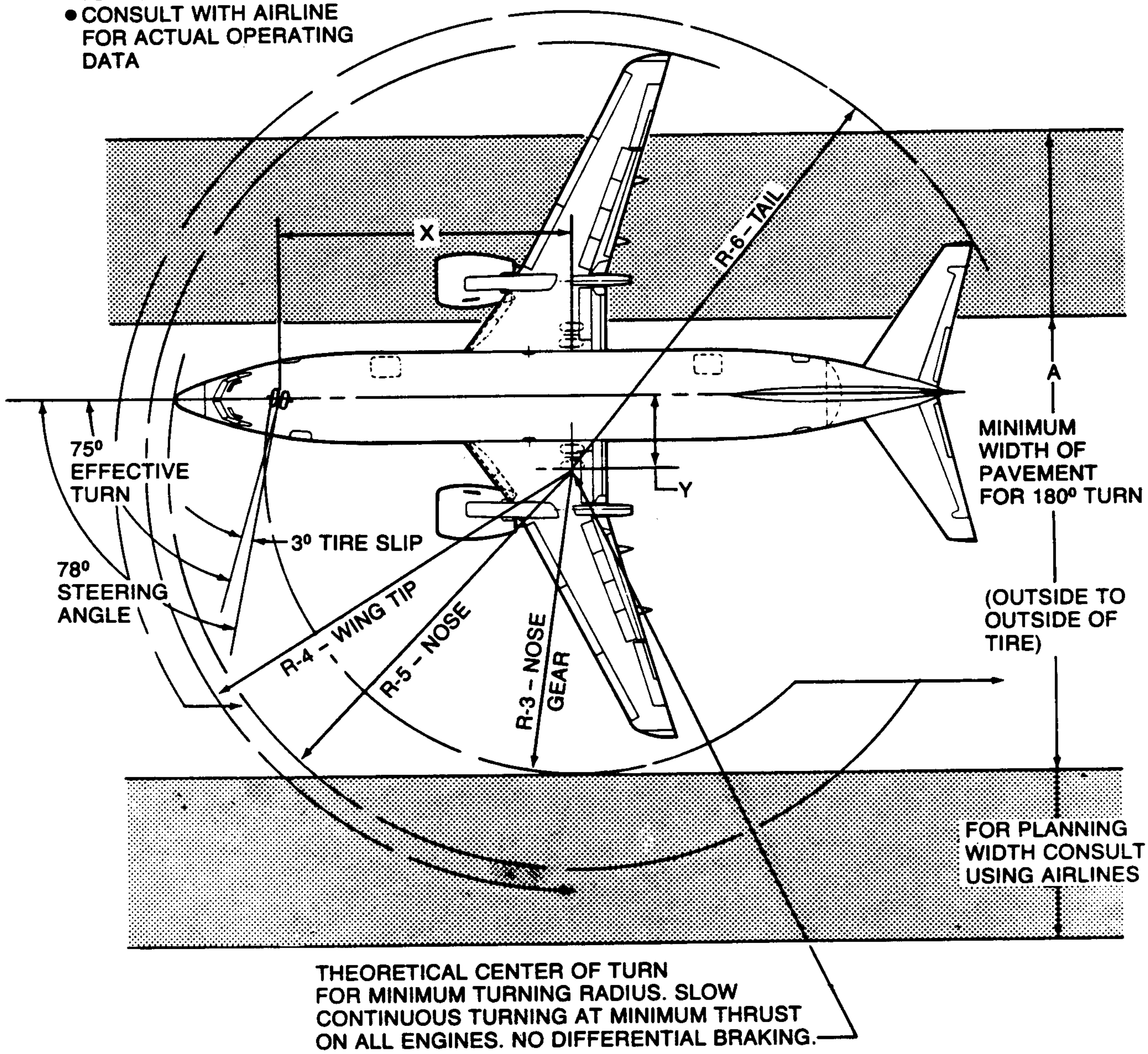
STEERING ANGLE DEGREES	R1 INNER GEAR		R2 OUTER GEAR		R3 NOSE GEAR		R4 WING TIP		R5 NOSE		R6 TAIL	
	FT	M	FT	M	FT	M	FT	M	FT	M	FT	M
30	52	16.0	73	22.3	74	22.4	111	33.9	80	24.4	99	30.1
45	26	7.9	47	14.3	52	15.9	85	25.9	61	18.7	78	23.6
50	20	6.1	41	12.5	48	14.7	79	24.2	58	17.7	73	22.3
55	15	4.6	36	10.9	45	13.8	74	22.7	56	16.9	70	21.3
60	11	3.2	31	9.6	43	13.1	70	21.3	54	16.4	67	20.4
65	7	2.0	27	8.4	41	12.5	66	20.1	52	15.9	65	19.7
70	3	0.9	24	7.2	40	12.1	62	19.0	51	15.6	62	19.0
78 (MAXIMUM)	-3	-0.8	18	5.5	38	11.6	57	17.4	50	15.3	60	18.2

4.2.3 TURNING RADII—NO SLIP ANGLE

MODEL 737-500

NOTES:

- 3° TIRE SLIP ANGLE APPROXIMATE ONLY FOR 78° TURN ANGLE
- CONSULT WITH AIRLINE FOR ACTUAL OPERATING DATA

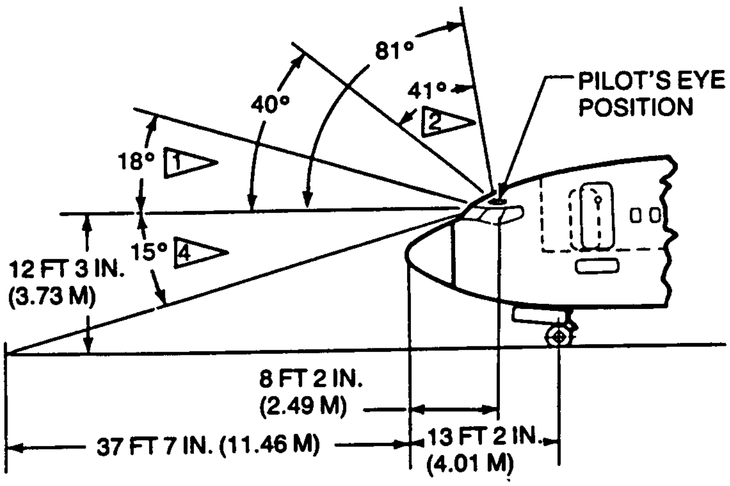


AIRPLANE MODEL	EFFECTIVE TURNING ANGLE (DEG)	X		Y		A		R3		R4		R5		R6	
		FT	M	FT	M	FT	M	FT	M	FT	M	FT	M	FT	M
737-300	75	40.8	12.4	11.0	3.4	64.6	19.7	43.3	13.2	60.2	18.3	55.0	16.8	64.0	19.5
737-400	75	46.8	14.3	12.5	3.8	72.4	22.1	49.4	15.1	61.8	18.8	61.3	18.7	68.3	20.8
737-500	75	36.3	11.1	9.7	3.0	58.7	17.9	38.5	11.7	59.1	18.0	50.4	15.4	60.6	18.5

4.3 MINIMUM TURNING RADII—3-DEG SLIP ANGLE

MODELS 737-300, -400, -500

NOT TO BE USED FOR LANDING APPROACH VISIBILITY



VISUAL ANGLES IN PLANE PARALLEL TO LONGITUDINAL AXIS THROUGH PILOT'S EYE POSITION

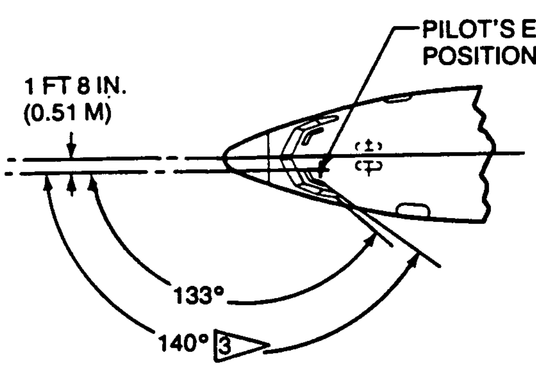
NOTES: HEAD ROTATED ABOUT POINT 3.3 IN. (0.08 M) AFT OF PILOT'S EYE POSITION

1 UPWARD VISION THROUGH MAIN WINDOW

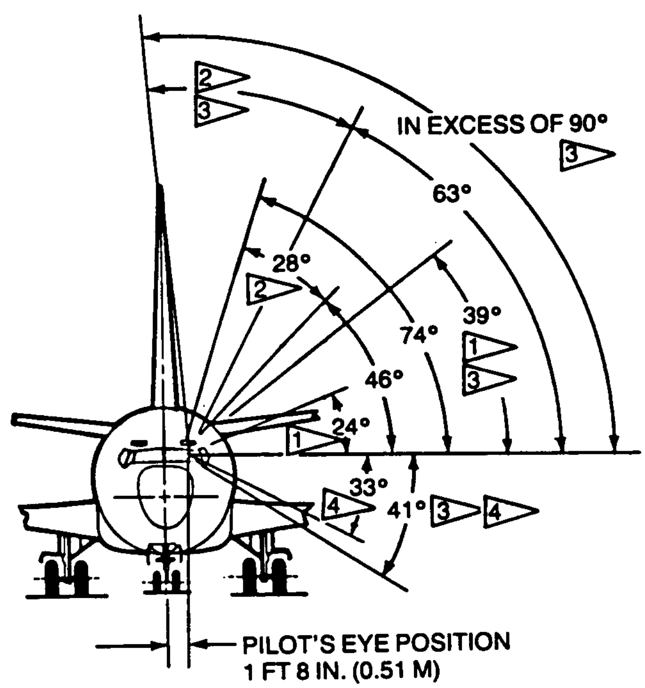
2 VISION THROUGH EYEBROW WINDOW

3 WITH HEAD MOVED 5 IN. (0.13 M) OUTBOARD

4 DOWNWARD VISION THROUGH MAIN WINDOW



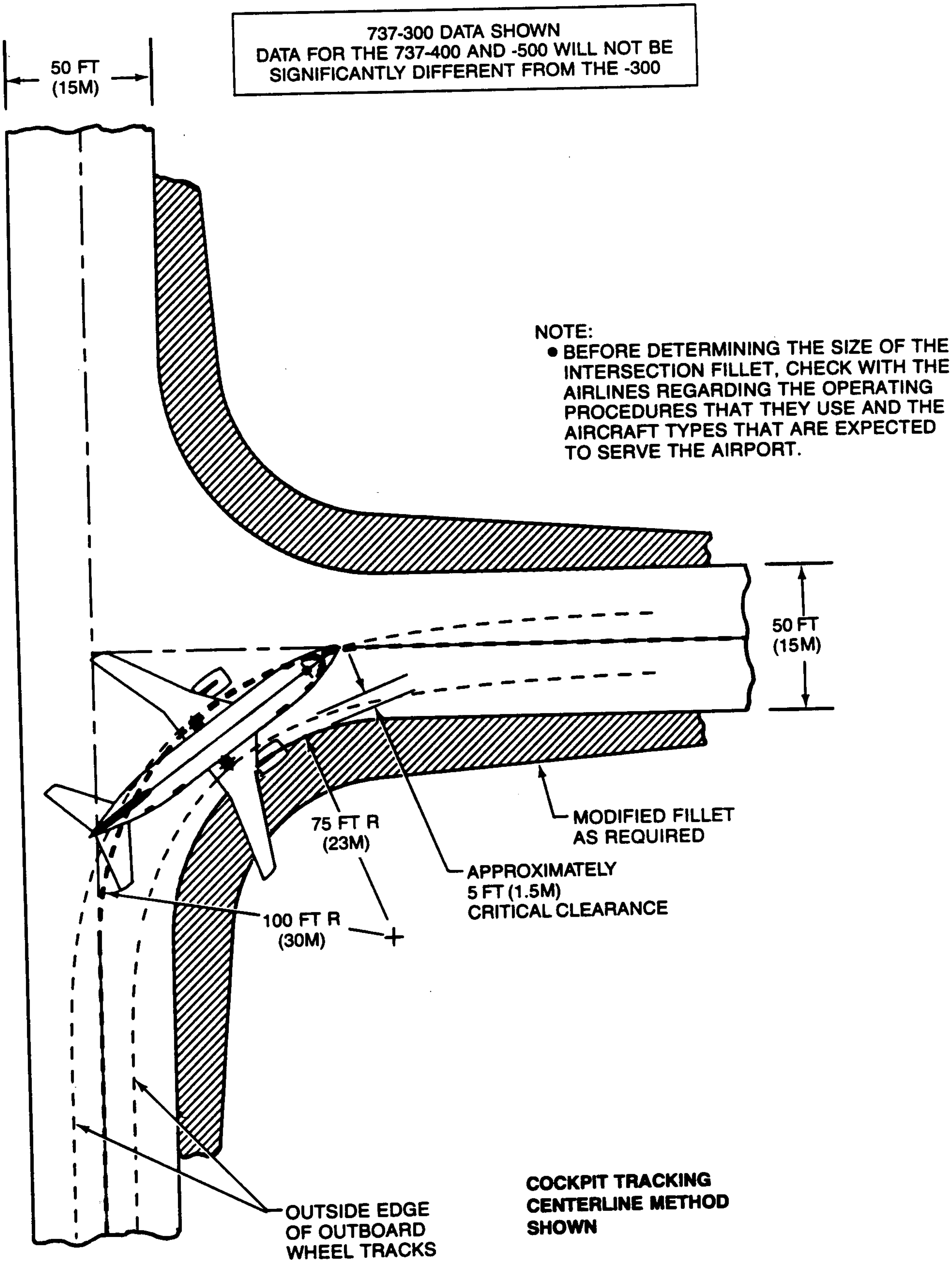
VISUAL ANGLES IN HORIZONTAL PLANE THROUGH PILOT'S EYE POSITION



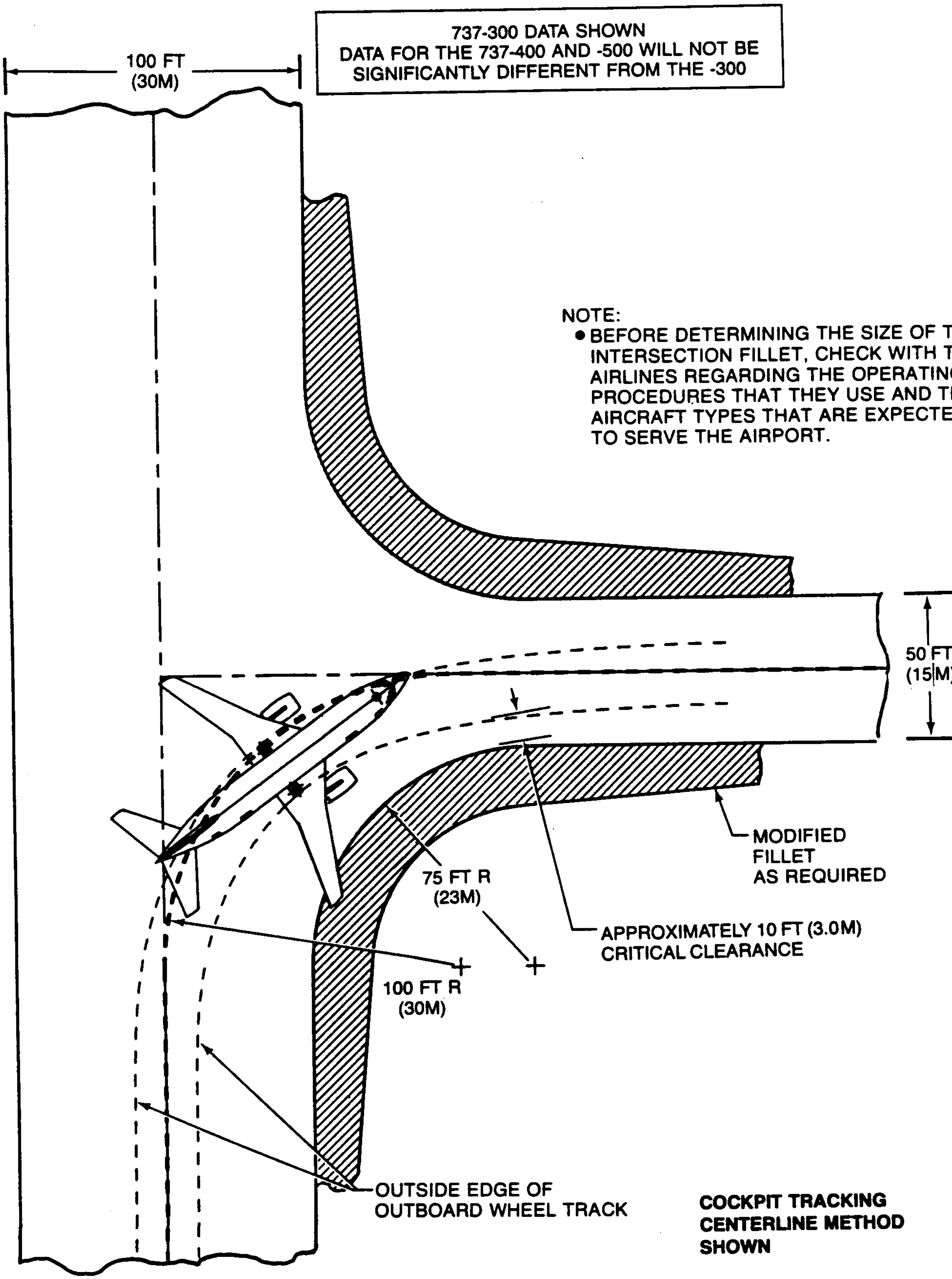
VISUAL ANGLES IN PLANE PERPENDICULAR TO LONGITUDINAL AXIS THROUGH PILOT'S EYE POSITION

4.4 VISIBILITY FROM COCKPIT IN STATIC POSITION

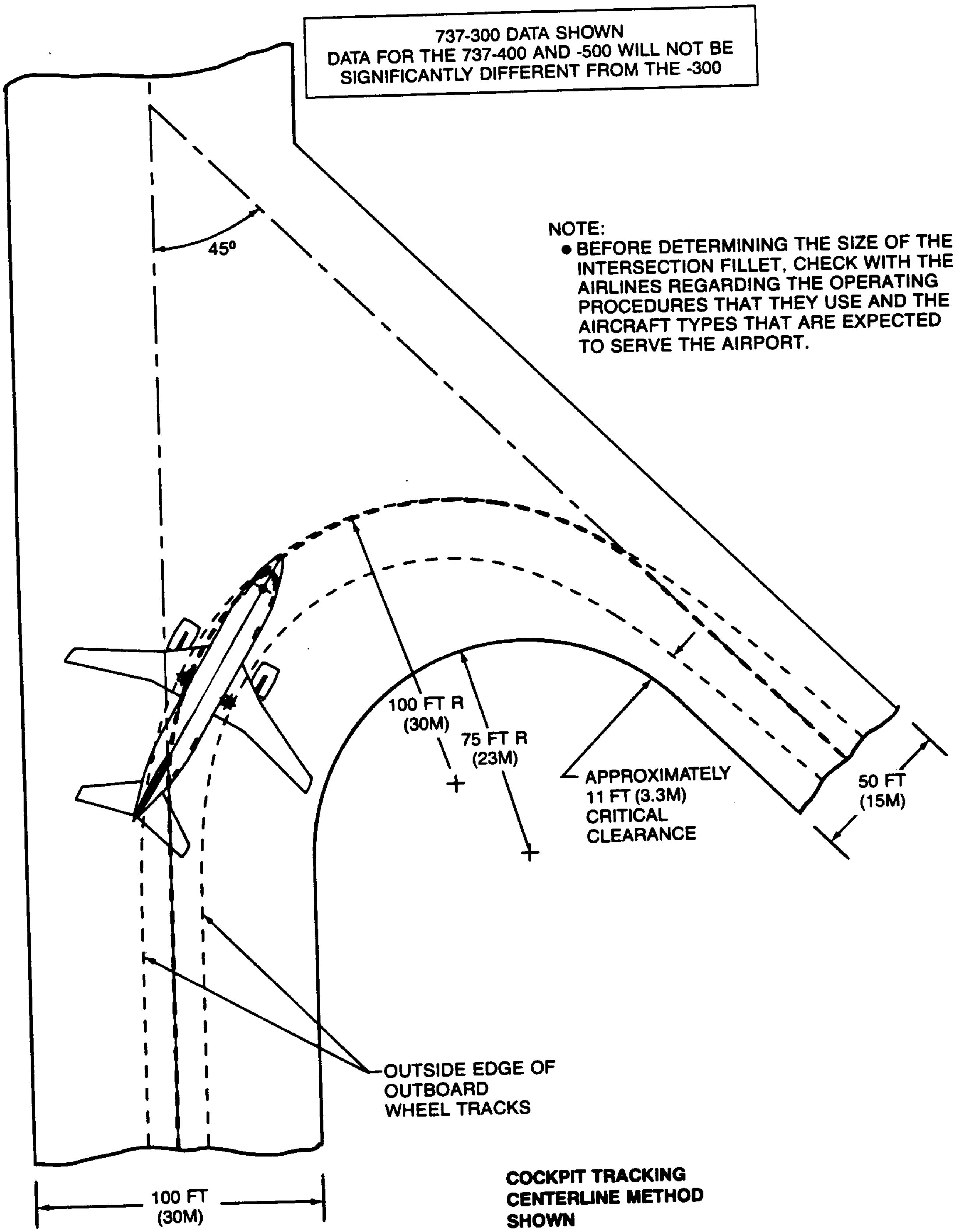
MODELS 737-300, -400, -500



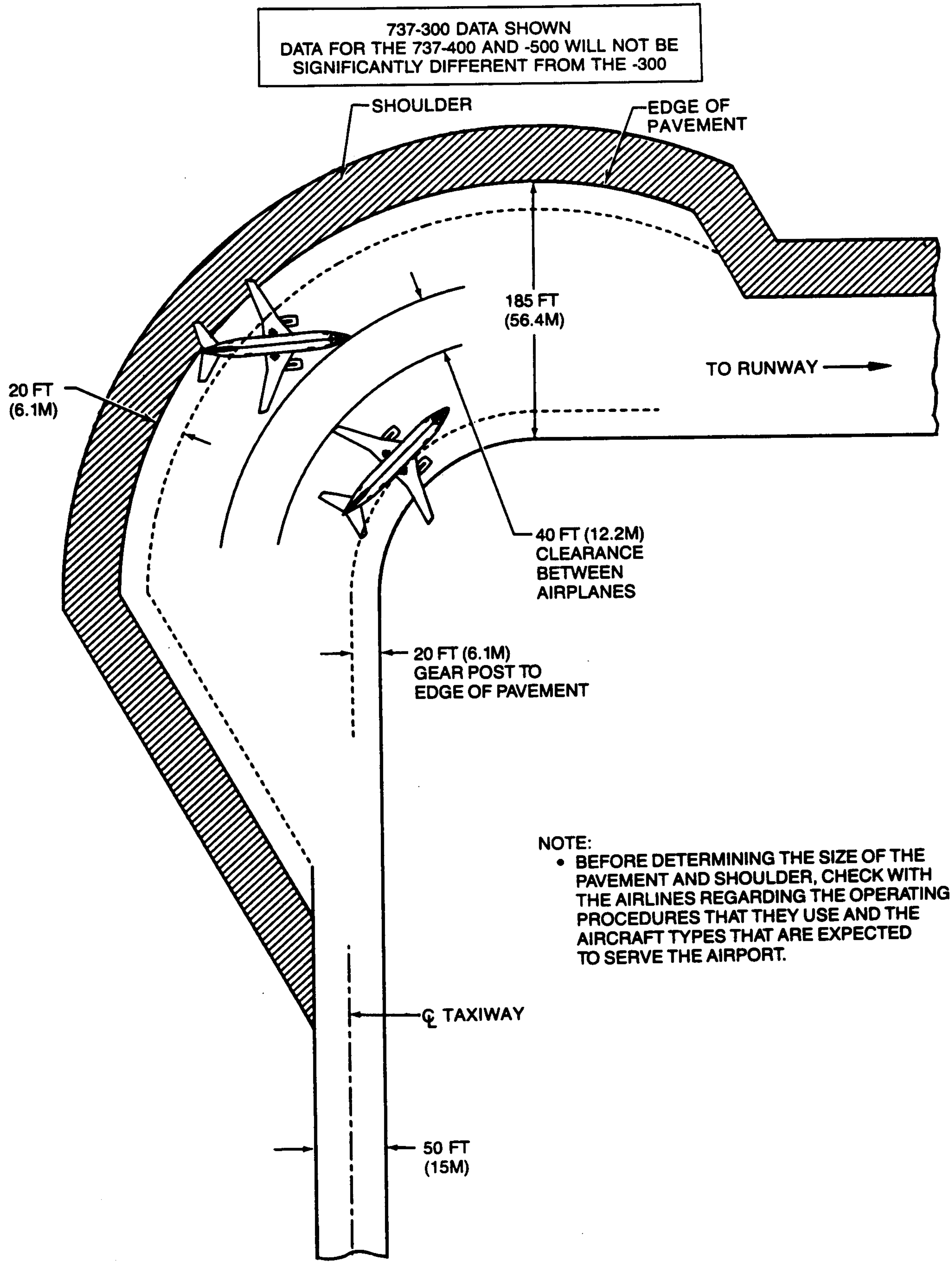
4.5.1 RUNWAY AND TAXIWAY TURN PATHS—TAXIWAY-TO-TAXIWAY TURN (90 DEG)
MODELS 737-300, -400, -500



4.5.2 RUNWAY AND TAXIWAY TURN PATHS—RUNWAY-TO-TAXIWAY TURN (90 DEG)
MODELS 737-300, -400, -500



4.5.3 RUNWAY AND TAXIWAY TURN PATHS—RUNWAY-TO-TAXIWAY TURN (MORE THAN 90 DEG)
MODELS 737-300, -400, -500



4.6 RUNWAY HOLDING BAY (APRON)
MODELS 737-300, -400, -500

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5.0 TERMINAL SERVICING

5.0 TERMINAL SERVICING

During turnaround at the terminal, certain services must be performed on the aircraft, usually within a given time to meet flight schedules. This section shows service vehicle arrangements, schedules, locations or service points, and typical service requirements. The data presented herein reflect ideal conditions for a single airplane. Service requirements may vary according to airplane condition and airline procedure.

Section 5.1 shows typical arrangements of ground support equipment during turnaround. As noted, if the auxiliary power unit (APU) is used, the electrical, air start, and airconditioning service vehicles would not be required. Passenger loading bridges could be used in lieu of the forward airstairs.

Sections 5.2 and 5.3 show typical service times at a terminal. These charts give typical schedules for performing service on the airplane within a given time. Service times could be rearranged to suit availability of personnel, airplane configuration, and degree of service required.

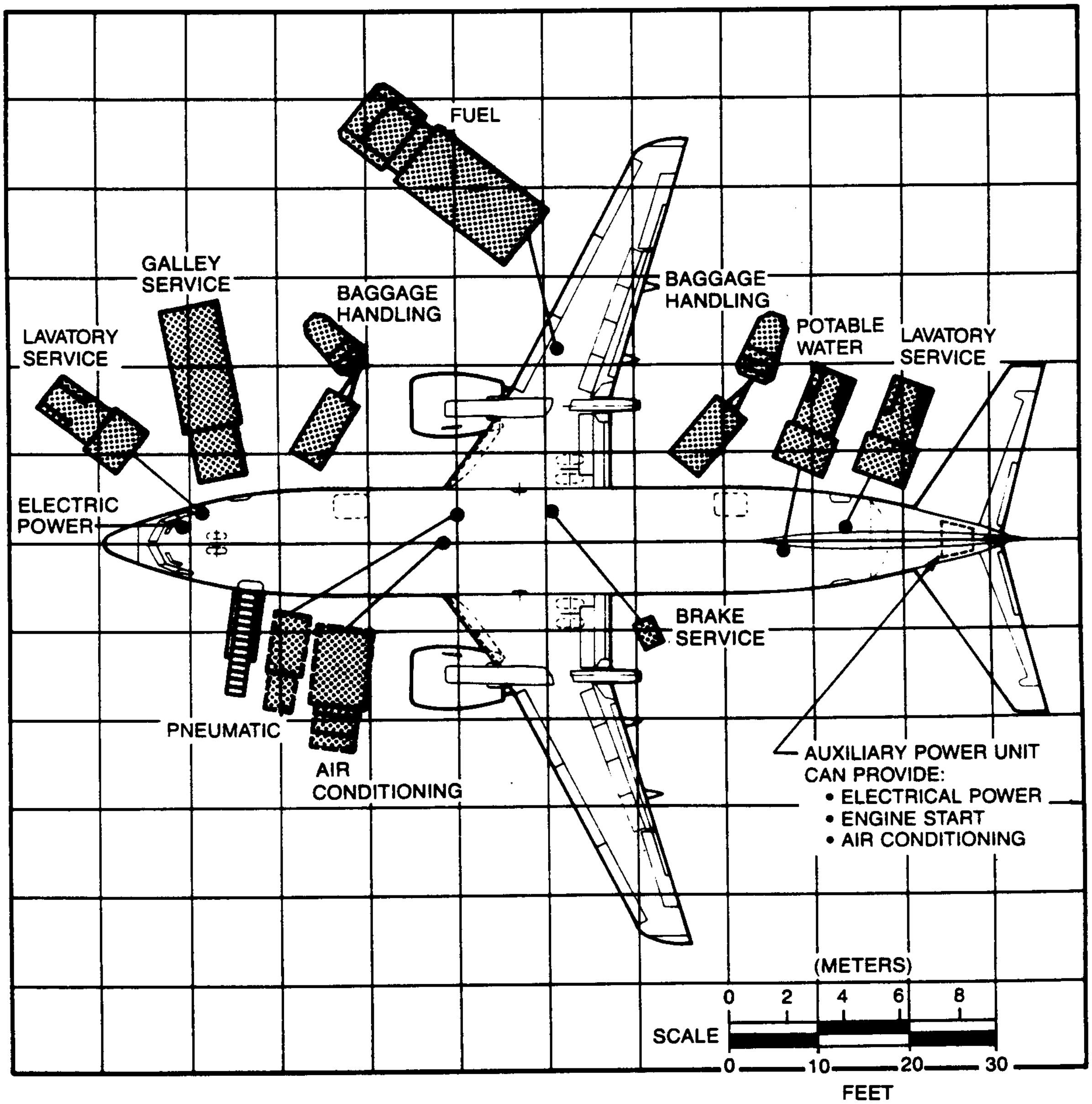
Section 5.4 shows the locations of ground service connections in graphic and in tabular forms. Typical capacities and service requirements are shown in the tables. Services with requirements that vary with conditions are described in subsequent sections.

Section 5.5 shows typical sea-level, standard-day pneumatic requirements for starting CFM 56-3 engines, using a ground pneumatic source. Compressed air is supplied through a 3-in ground air connector (GAC) to the pneumatic starter at each turbofan engine. Minimum requirements vary with elevation, ambient temperature, and air start duration. For an ambient condition, there would be several airflow-pressure-temperature combinations at the GAC to meet a certain start time duration. Maximum pressure and temperature at the ground air connection are 60 psia and 450°F, respectively.

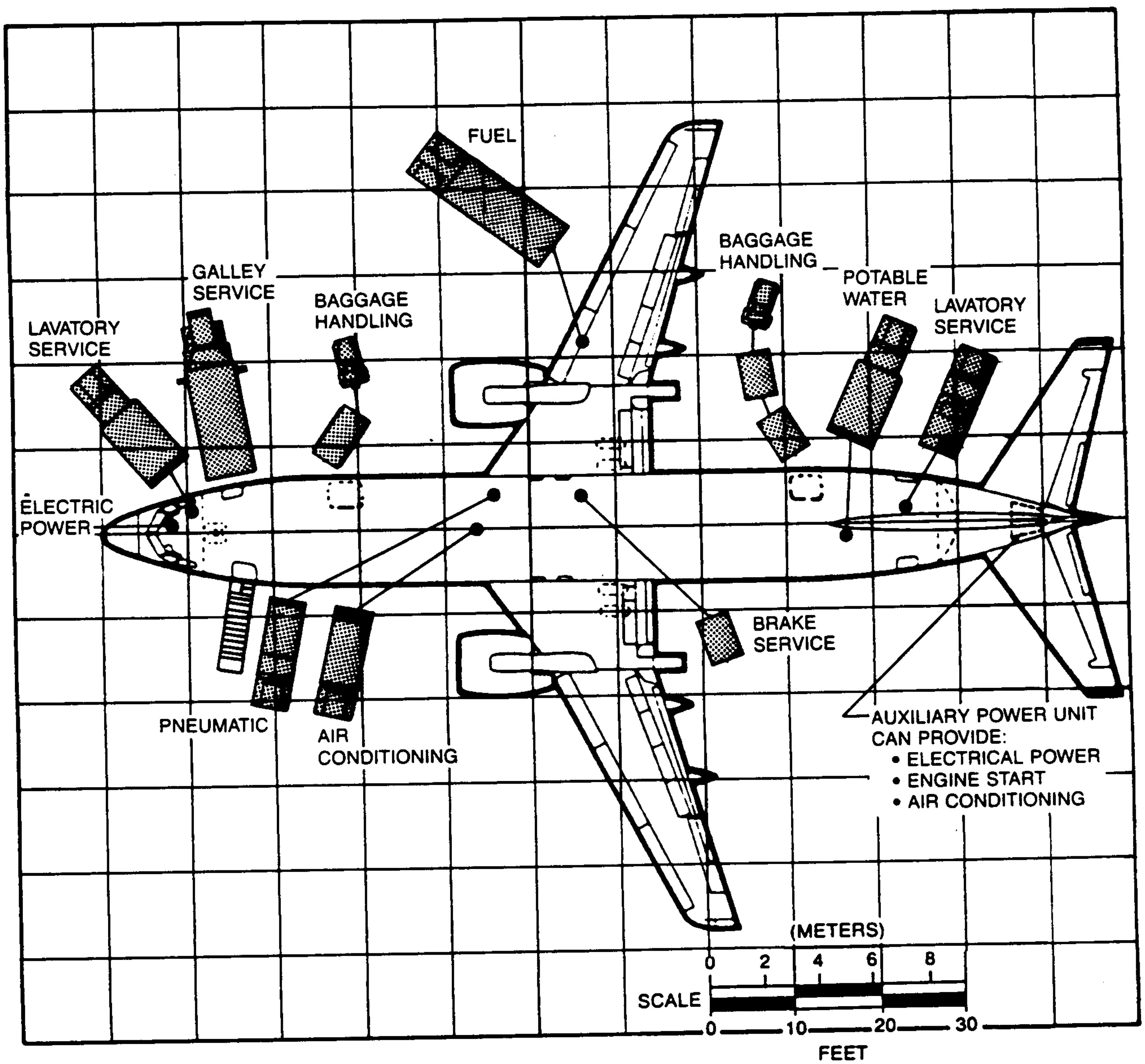
Section 5.6 shows pneumatic requirements for heating and cooling (air-conditioning) using high-pressure air to run the air-cycle machine. The temperature inside the airplane is assumed to be the same as the ambient temperature, among other conditions as noted. The curves show airflow requirements to heat or cool the airplane within a given time. The GAC is the same GAC as for air start. The maximum allowable pressure and temperature for air cycle machine operation are 60 psia and 450°F, respectively.

Section 5.7 shows pneumatic requirements for heating and cooling the airplane, using low-pressure conditioned air. This conditioned air is supplied through an 8-in GAC directly to the passenger cabin, bypassing the air-cycle machines. The chart shows requirements for pull-up and cool-down as well as for steady-state heating and cooling. Normally, a 22-ton source would be sufficient to meet air-conditioning requirements.

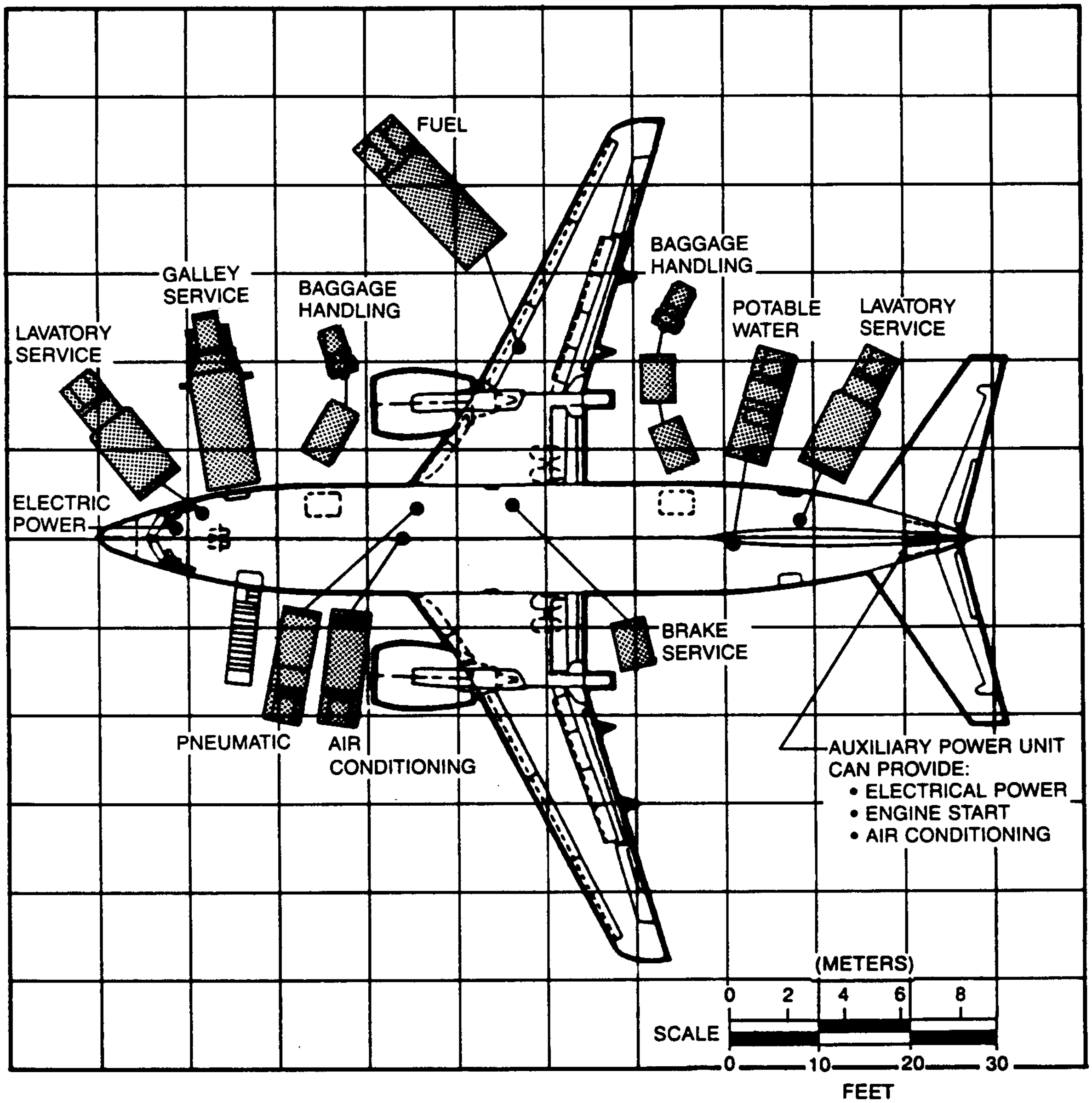
Section 5.8 shows ground towing requirements for various conditions. For example, towing a 105,000-lb (47,620-kg) airplane up a 1% slope with no engine thrust would require a 5,200-lb (2,360-kg) drawbar pull. Operating on a surface covered with compacted or hard snow (μ=0.20), the minimum traction wheel load would be 26,000 lb (11,790 kg). If the engines were idling and the tow was in a direction opposite to the idle thrust, the drawbar pull would be 6,800 lb (3,080 kg) and the traction wheel load on a hard, snow-covered surface would be 34,000 lb (15,420 kg).



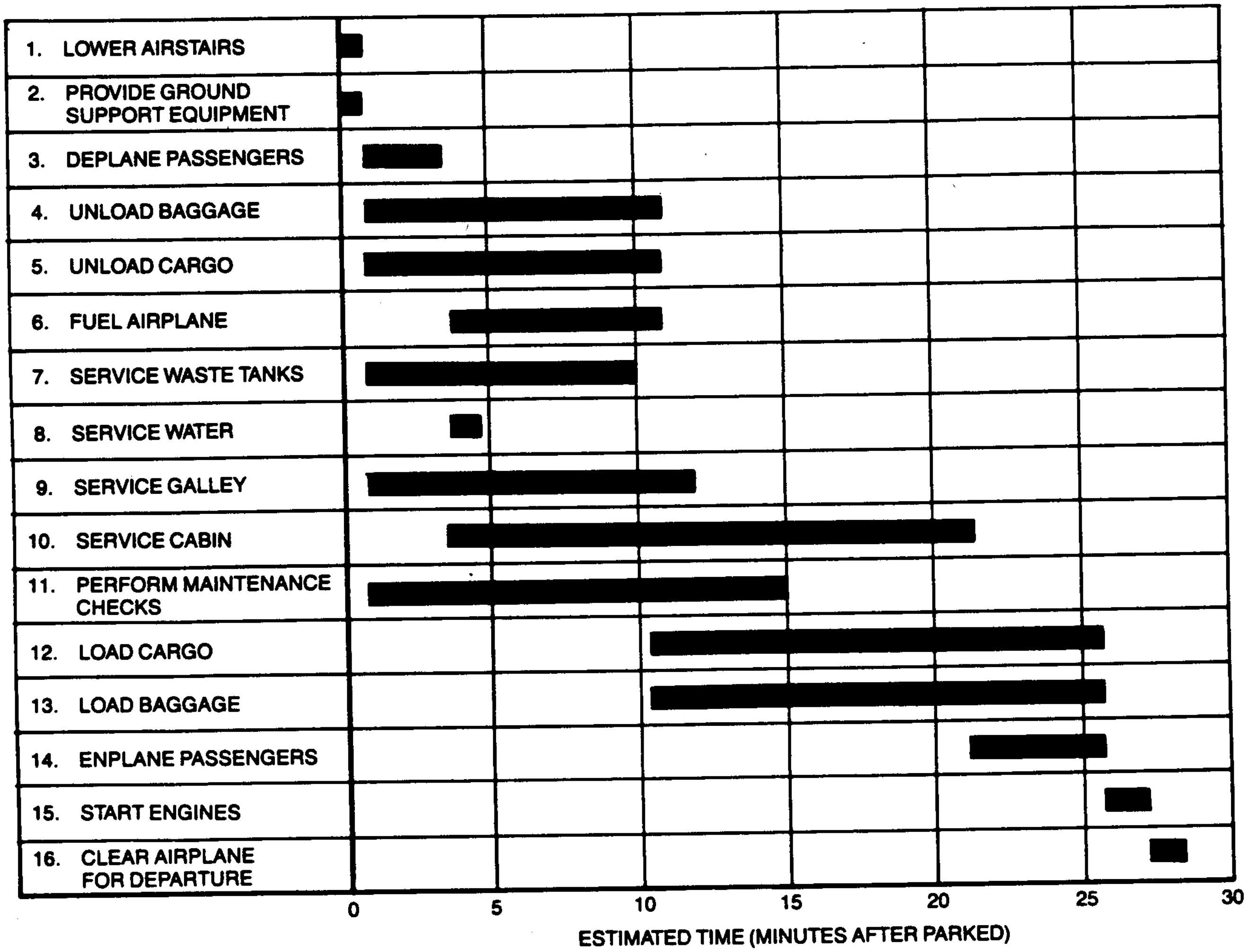
5.1.1 AIRPLANE SERVICING ARRANGEMENTS—TYPICAL TURNAROUND
MODEL 737-300



5.1.2 AIRPLANE SERVICING ARRANGEMENTS—TYPICAL TURNAROUND
MODEL 737-400



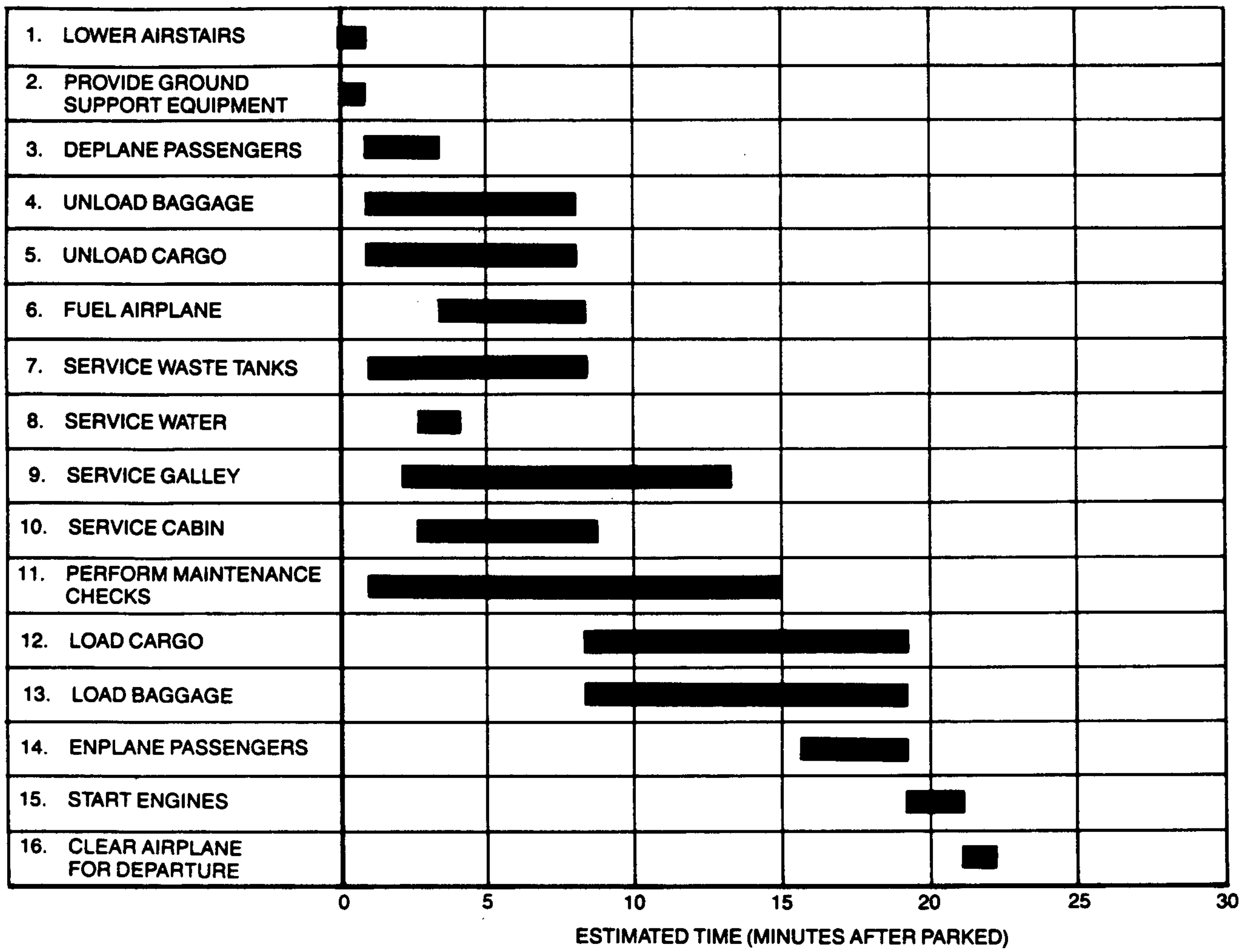
5.1.3 AIRPLANE SERVICING ARRANGEMENTS—TYPICAL TURNAROUND
MODEL 737-500



NOTES:

1. ESTIMATES BASED ON MIXED-CLASS CONFIGURATION, 65% LOAD FACTOR.
2. IT IS ASSUMED THAT ALL EQUIPMENT FUNCTIONS PROPERLY AND THAT NO ABNORMAL WEATHER CONDITIONS EXIST. TOTAL TIME ON THE RAMP IS 30 MINUTES.
3. BOTH FORWARD AND AFT DOORS ARE USED.
4. 100% PASSENGER EXCHANGE.
5. THE ABOVE DATA IS PROVIDED TO ILLUSTRATE THE GENERAL SCOPE AND TYPES OF TASKS INVOLVED IN TERMINAL OPERATIONS. VARYING AIRLINE PRACTICES AND OPERATING CIRCUMSTANCES THROUGHOUT THE WORLD WILL RESULT IN DIFFERENT SEQUENCES AND TIME INTERVALS TO ACCOMPLISH THE TASKS SHOWN.
6. GROUND OPERATIONS REQUIREMENTS SHOULD BE COORDINATED WITH THE USING AIRLINES PRIOR TO RAMP PLANNING.

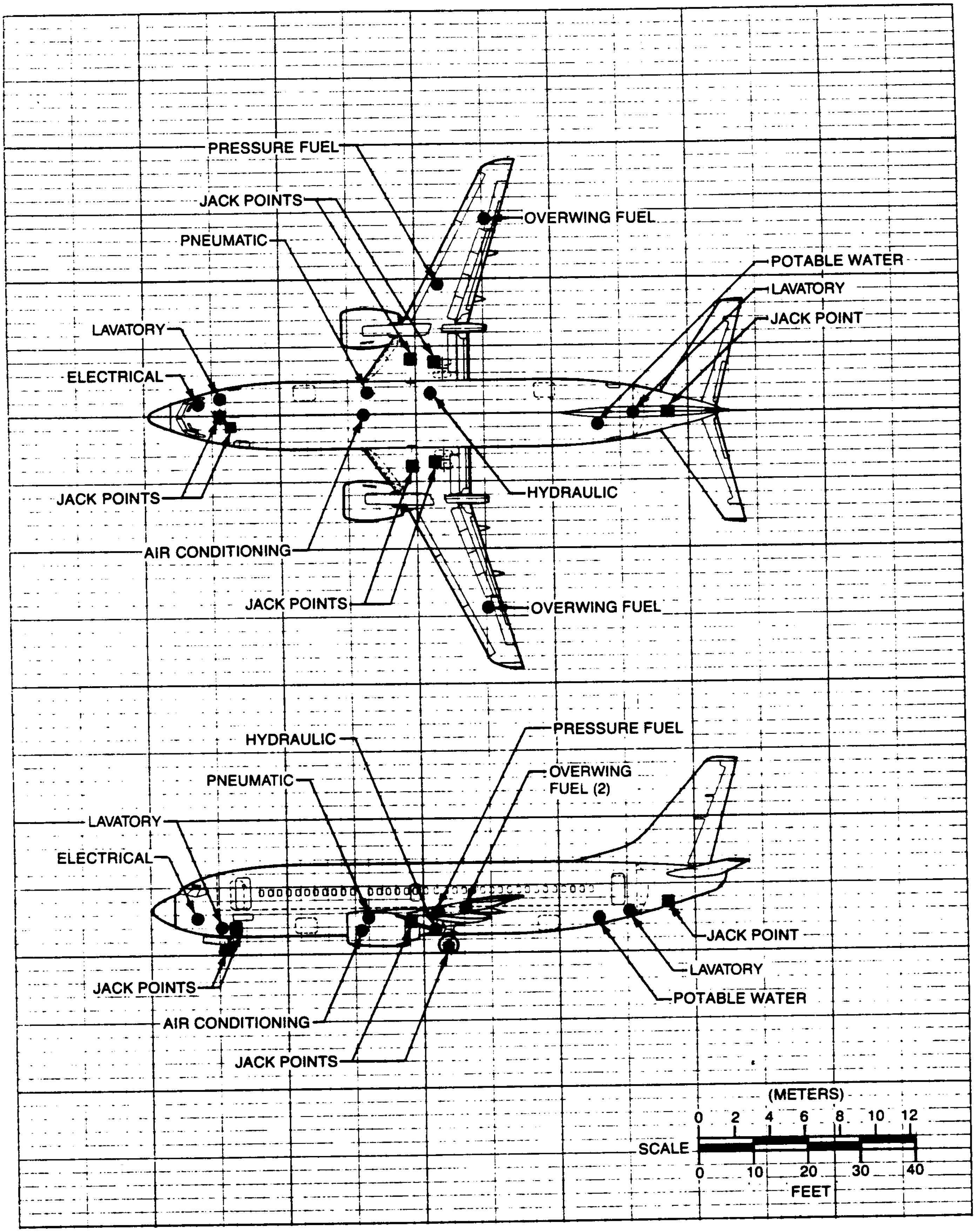
5.2 TERMINAL OPERATIONS—TURNAROUND STATION
MODELS 737-300, -400, -500



NOTES:

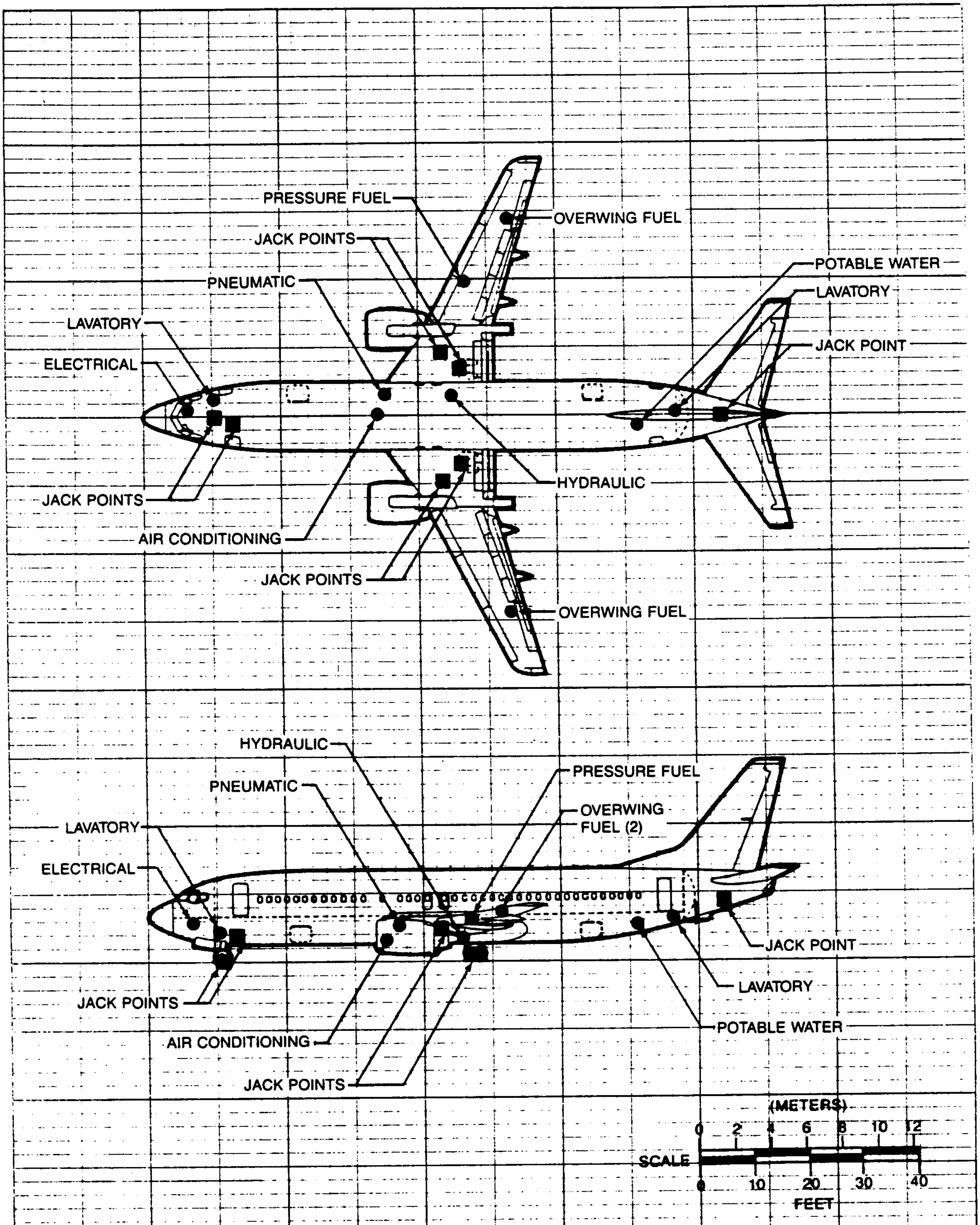
1. ESTIMATES BASED ON MIXED-CLASS CONFIGURATION, 65% LOAD FACTOR.
2. IT IS ASSUMED THAT ALL EQUIPMENT FUNCTIONS PROPERLY AND THAT NO ABNORMAL WEATHER CONDITIONS EXIST. TOTAL TIME ON THE RAMP IS 25 MINUTES.
3. BOTH FORWARD AND AFT DOORS ARE USED.
4. 75% PASSENGER EXCHANGE.
5. THE ABOVE DATA IS PROVIDED TO ILLUSTRATE THE GENERAL SCOPE AND TYPES OF TASKS INVOLVED IN TERMINAL OPERATIONS. VARYING AIRLINE PRACTICES AND OPERATING CIRCUMSTANCES THROUGHOUT THE WORLD WILL RESULT IN DIFFERENT SEQUENCES AND TIME INTERVALS TO ACCOMPLISH THE TASKS SHOWN.
6. GROUND OPERATIONS REQUIREMENTS SHOULD BE COORDINATED WITH THE USING AIRLINES PRIOR TO RAMP PLANNING.

5.3 TERMINAL OPERATIONS—EN ROUTE STATION
MODELS 737-300, -400, -500

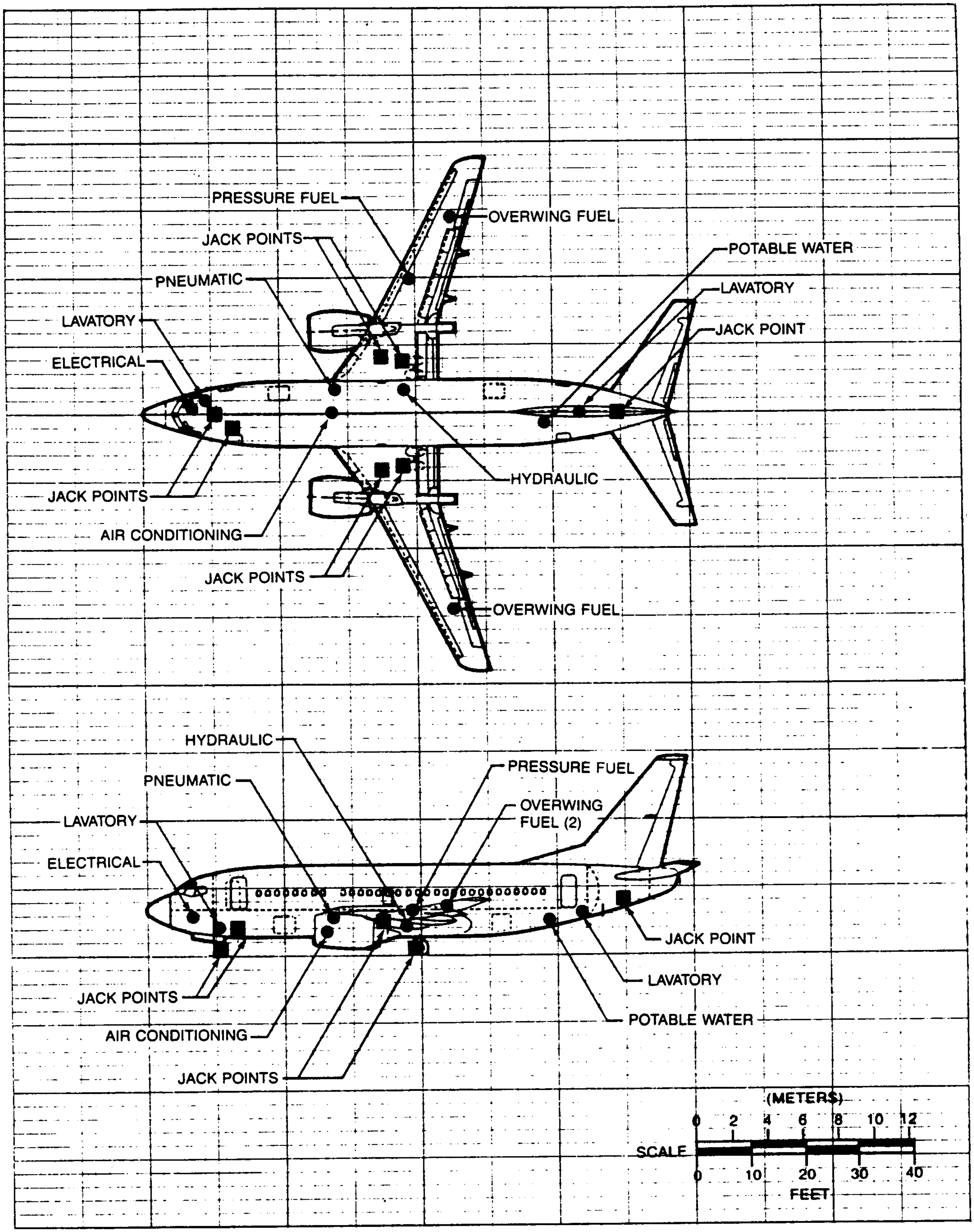


5.4.1 GROUND SERVICE CONNECTIONS

MODEL 737-300



5.4.2 GROUND SERVICE CONNECTIONS
MODEL 737-400



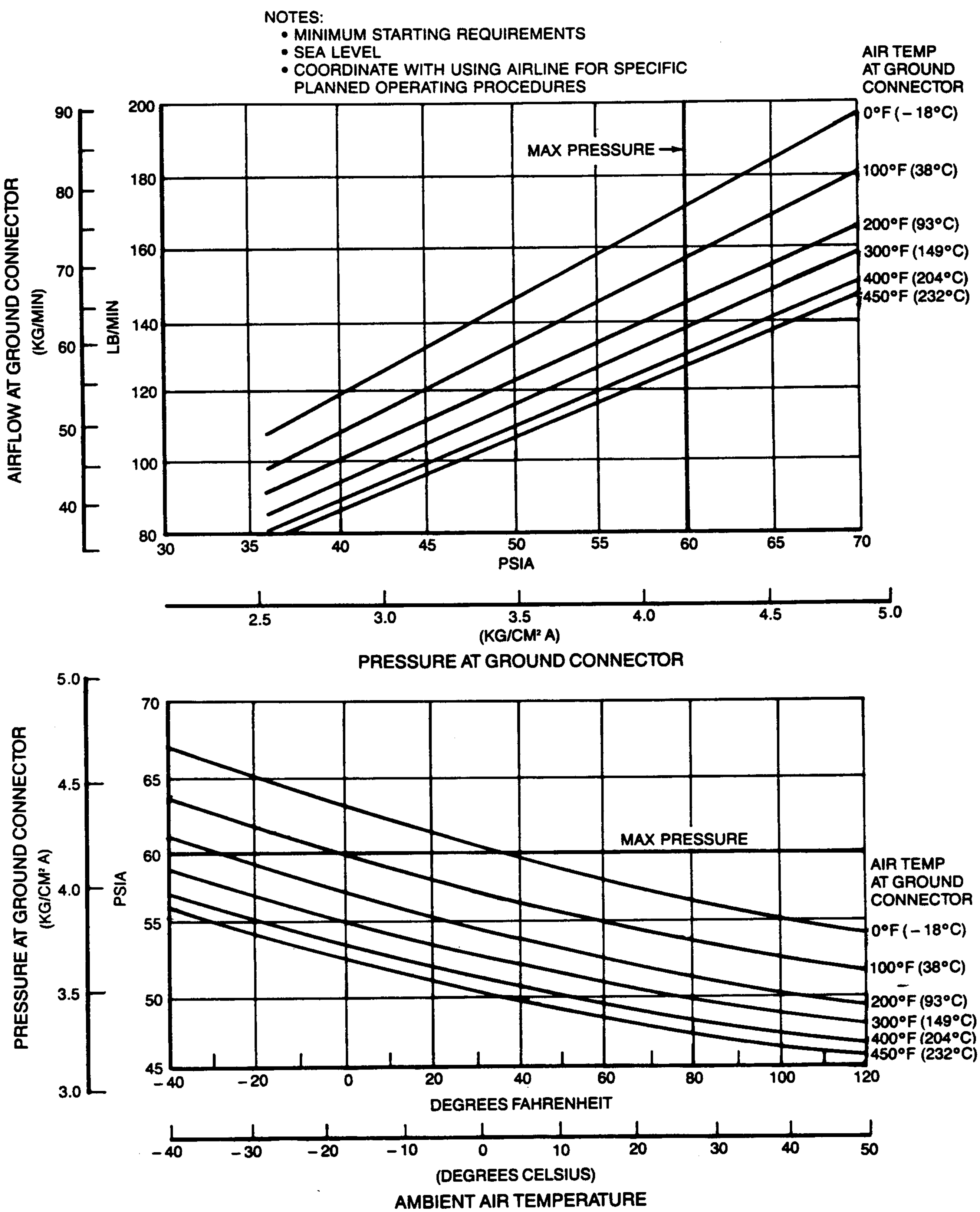
5.4.3 GROUND SERVICE CONNECTIONS
MODEL 737-500

	MODEL	DISTANCE AFT OF NOSE		DISTANCE FROM AIRPLANE CENTERLINE				HEIGHT ABOVE GROUND	
				LEFT SIDE		RIGHT SIDE			
		FT - IN	M	FT - IN	M	FT - IN	M	FT - IN	M
AIR CONDITIONING • 1.8-IN (0.20M) GROUND AIR CONNECTION	-300	39 - 10	12.14	0 - 0	0.00	0 - 0	0.00	3 - 3	0.99
	-400	45 - 10	13.97	0 - 0	0.00	0 - 0	0.00	3 - 3	0.99
• SEE SEC 5.7 FOR TYPICAL REQUIREMENTS	-500	36 - 2	11.02	0 - 0	0.00	0 - 0	0.00	3 - 3	0.99
ELECTRICAL • ONE EXTERNAL POWER CONNECTION RECEPTACLE IN SKIN POCKET 120/208-V 3-PHASE AC, 400-HZ, 60-KVA CAPACITY	ALL	8 - 6	2.59			2 - 11	0.89	5 - 4	1.63
FUEL • ONE PRESSURE FUELING CONNECTION AND FUEL CONTROL PANEL - HINGED COVER OVER CONNNECTOR AND PANEL. EXTERNAL FUELING SOURCE AT 50 PSIG, 300 GPM (1,135 LPM)	-300	50 - 9	15.47			23 - 6	7.16	8 - 0	2.44
	-400	56 - 9	17.30			23 - 6	7.16	8 - 0	2.44
	-500	47 - 1	14.35			23 - 6	7.16	8 - 0	2.44
• TWO OVERWING FILL PORTS	-300	58 - 9	17.91			34 - 3	10.44	9 - 4	2.84
		58 - 9	17.91	34 - 3	10.44			9 - 4	2.84
• SEE SEC 2.1 FOR FUEL CAPACITY DATA	-400	64 - 9	19.74			34 - 3	10.44	9 - 4	2.84
		64 - 9	19.74	34 - 3	10.44			9 - 4	2.84
	-500	55 - 1	16.79			34 - 3	10.44	9 - 4	2.84
		55 - 1	16.79	34 - 3	10.44			9 - 4	2.84
HYDRAULIC • ONE FILL CONNECTION IN RIGHT WHEEL WELL. 3 RESERVOIRS ARE INTERCONNECTED: "A" SYSTEM—19.38 GAL (73.4L) "B" SYSTEM—4.3 GAL (16.3L) "STDBY" SYSTEM—2.6 GAL (9.8L)	-300	51 - 2	15.60			4 - 5	1.35	4 - 5	1.35
	-400	57 - 2	17.42			4 - 5	1.35	4 - 5	1.35
	-500	47 - 6	14.48			4 - 5	1.35	4 - 5	1.35
• ONE TEST CONNECTION (PRESSURE AND RETURN)	-300	51 - 2	15.60			3 - 9	1.14	4 - 5	1.35
	-400	57 - 2	17.42			3 - 9	1.14	4 - 5	1.35
	-500	47 - 6	14.48			3 - 9	1.14	4 - 5	1.35

5.4.4 GROUND SERVICE CONNECTIONS
MODELS 737-300, -400, -500

	MODEL	DISTANCE AFT OF NOSE		DISTANCE FROM AIRPLANE CENTERLINE				HEIGHT ABOVE GROUND	
				LEFT SIDE		RIGHT SIDE			
		FT - IN	M	FT - IN	M	FT - IN	M	FT - IN	M
LAVATORY • ONE PRESSURE CONNECTION FOR DRAINING, FLUSHING, AND CHEM FILL - 17 GAL (64.3L) CAPACITY • 10 GPM (37.9 LPM), 20 PSIG (1.41 KG/SQ CM) SERVICE REQUIRED	-300 -400 -500	11 - 8 88 - 0 11 - 8 98 - 0 11 - 8 78 - 6	3.56 26.82 3.56 29.87 3.56 23.93			3 - 10 0 - 10 3 - 10 0 - 10 3 - 10 0 - 10	1.17 0.25 1.17 0.25 1.17 0.25	5 - 10 7 - 10 5 - 10 7 - 10 5 - 10 7 - 10	1.78 2.39 1.78 2.39 1.78 2.39
OXYGEN • INDIVIDUAL CANISTERS AT EACH PASSENGER SERVICE UNIT. • 39-CU FT (1.10 CU M) OR 76 CU FT (2.15 CU M) BOTTLE IN FWD CARGO COMPARTMENT.	ALL								
PNEUMATIC • ONE 3-IN (0.08M) GROUND AIR CONNECTION FOR AIR START AND AIR CONDITIONING PACKS • SEE SEC 5.5 AND 5.6 FOR TYPICAL REQUIREMENTS	-300 -400 -500	40 - 10 46 - 10 37 - 2	12.45 14.27 11.33			3 - 0 3 - 0 3 - 0	0.91 0.91 0.91	3 - 8 3 - 8 3 - 8	1.12 1.12 1.12
POTABLE WATER • WATER AND AIR SERVICE PANEL • FILL CONTAINER FOR POTABLE WATER—34-GAL (128.7L) TANK • FILL PRESSURE 10 - 125 PSIG (0.70 - 8.75 KG/SQ CM) • ONE VALVE TO FILL AIR SYSTEM, PRESSURE 25 - 100 PSIG (1.76 TO 7.03 KG/SQ CM)	-300 -400 -500	84 - 9 94 - 9 75 - 3	25.83 28.88 22.94	1 - 0 1 - 0 1 - 0	0.30 0.30 0.30			6 - 4 6 - 4 6 - 4	1.93 1.93 1.93

5.4.5 GROUND SERVICE CONNECTIONS
MODELS 737-300, -400, -500

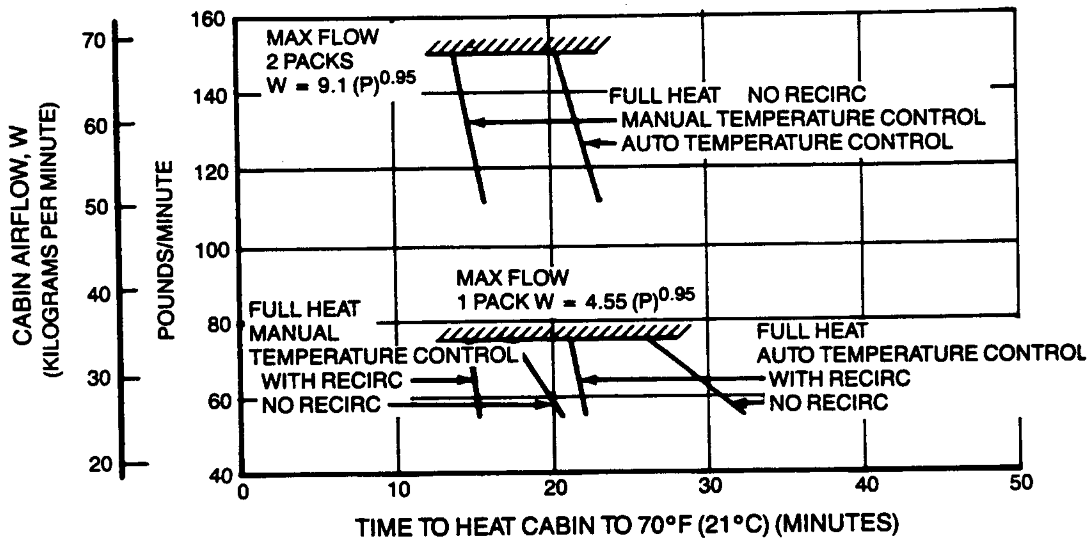


5.5.1 ENGINE STARTING PNEUMATIC REQUIREMENTS—SEA LEVEL
MODELS 737-300, -400, -500

737-300 DATA SHOWN
DATA FOR THE 737-500 WILL NOT BE
SIGNIFICANTLY DIFFERENT FROM THE -300

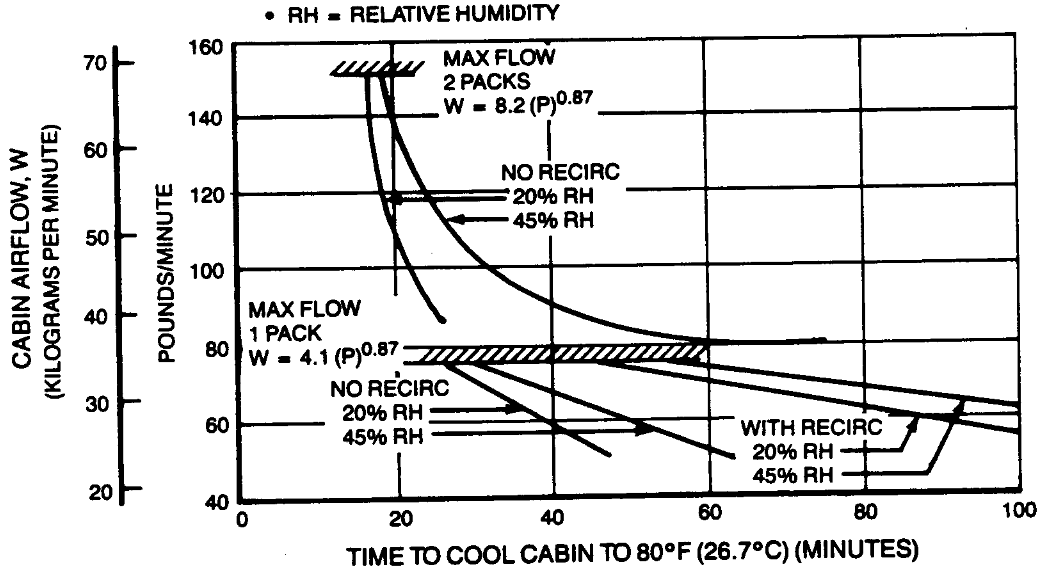
HEATING (PULL-UP)

- INITIAL CABIN TEMPERATURE: 0°F (– 17.8°C)
- NO GALLEY LOAD
- NO ELECTRICAL LOAD
- W_{CART} = 1.23 x W
- P = PRESSURE AT GROUND CONNECTION, PSIG
- TEMPERATURE AT GROUND CONNECTION: 200°F (66°C) TO 450°F (232°C)



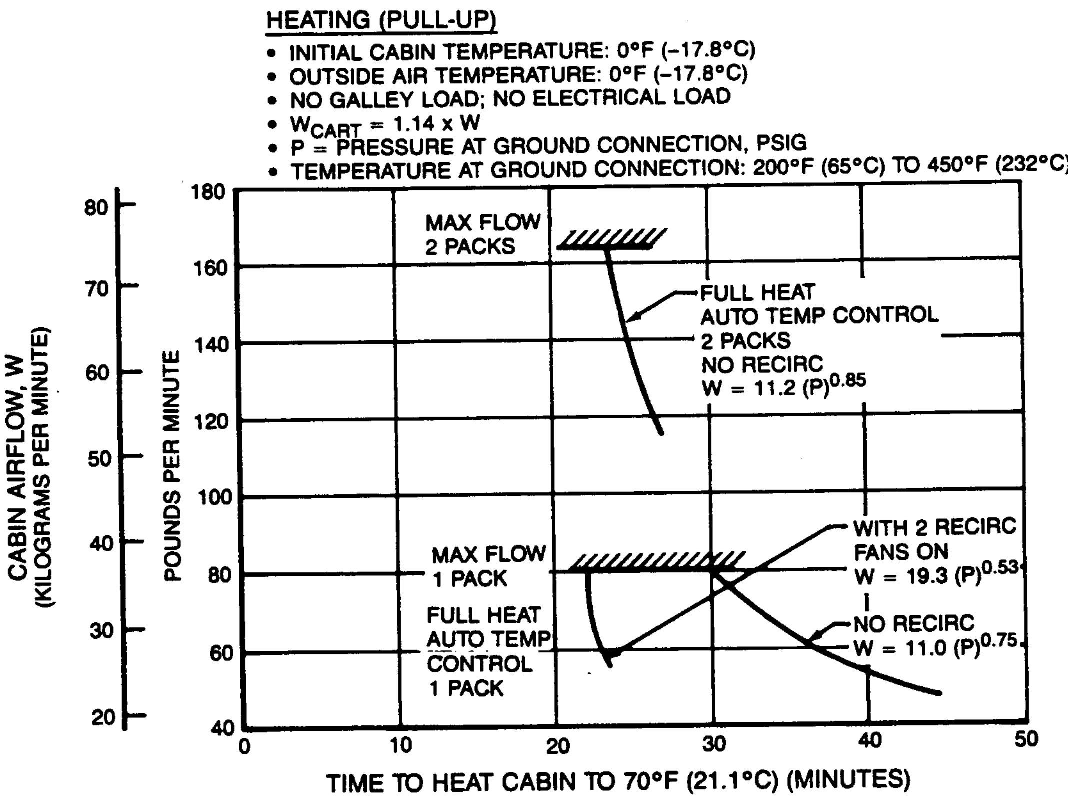
COOLING (PULL-DOWN)

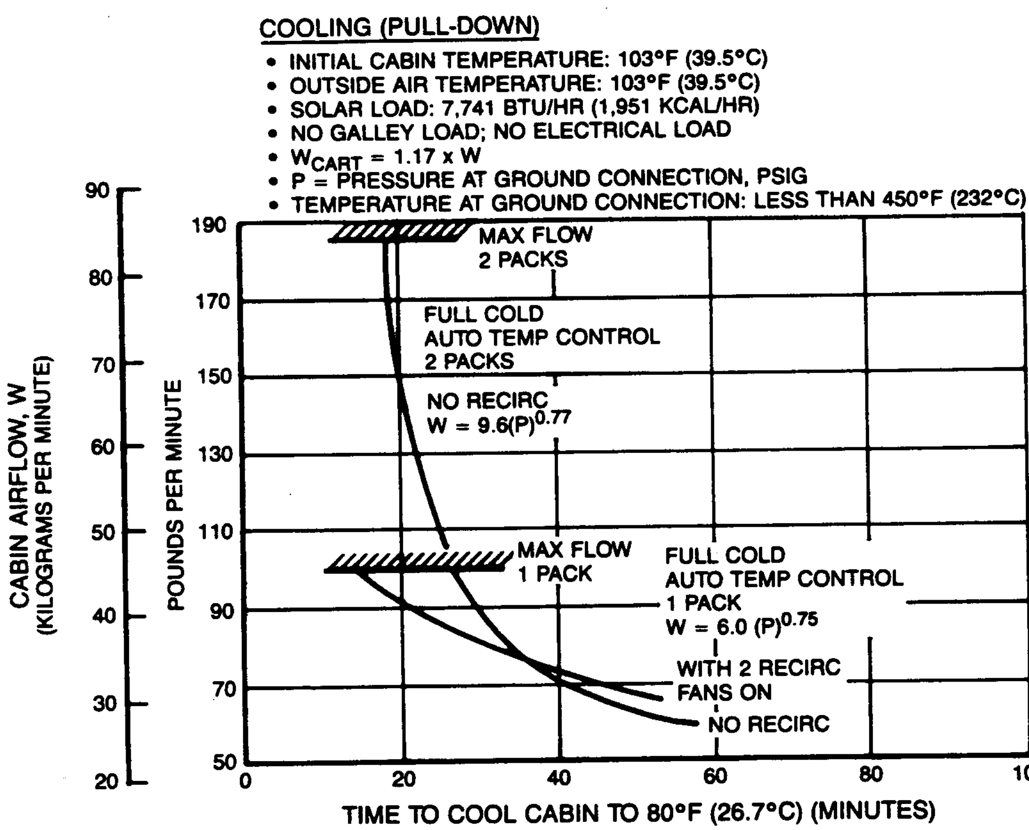
- INITIAL CABIN TEMPERATURE: 103°F (39.5°C)
- OUTSIDE AIR TEMPERATURE: 103°F (39.5°C)
- SOLAR LOAD: 4,800 BTU/HR (1,210 KCAL/HR)
- NO GALLEY LOAD
- TEMPERATURE AT GROUND CONNECTION: LESS THAN 450°F (232°C)
- W_{CART} = 1.26 x W
- P = PRESSURE AT GROUND CONNECTION, PSIG
- NO ELECTRICAL LOAD
- RH = RELATIVE HUMIDITY



5.6.1 GROUND PNEUMATIC POWER REQUIREMENTS—AIR CONDITIONING

MODELS 737-300, -500





5.6.2 GROUND PNEUMATIC POWER REQUIREMENTS—AIR CONDITIONING

MODEL 737-400

737-300 DATA SHOWN
DATA FOR THE 737-500 WILL NOT BE
SIGNIFICANTLY DIFFERENT FROM THE -300

COOLING:

① CABIN AT 75°F (23.9°C); 138 PASSENGERS AND CREW; NO GALLEY LOAD; BRIGHT DAY; SOLAR LOAD; 4,800 BTU/HR; ELECTRICAL LOAD 6,984 BTU/HR

② CABIN AT 80°F (26.7°C); OTHERWISE SAME AS IN ①

③ CABIN AT 70°F (21.2°C): 2 CREW MEMBERS; GALLEY LOAD: 8,200 BTU/HR; SOLAR LOAD: 4,800 BTU/HR; ELECTRICAL LOAD: 6,984 BTU/HR.

④ CABIN AT 80°F (26.7°C); 98 PASSENGERS AND CREW; NO GALLEY LOAD; BRIGHT DAY SOLAR LOAD; 4,800 BTU/HR; ELECTRICAL LOAD: 6,984 BTU/HR PRECONDITIONED AIRPLANE

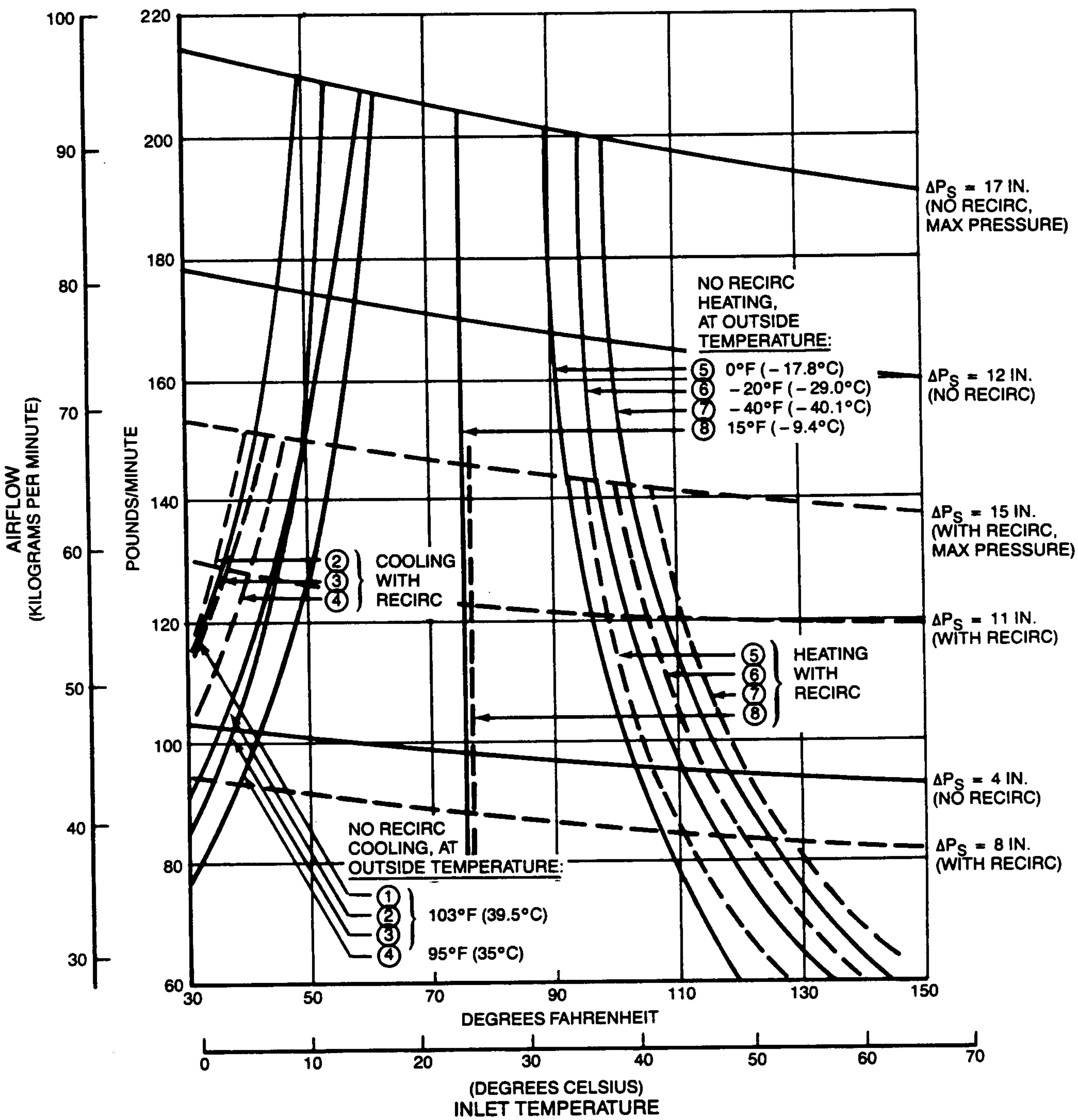
HEATING:

⑤ ⑥ ⑦ CABIN AT 75°F (23.9°C); NO CREW OR PASSENGERS; NO OTHER HEAT LOAD

⑧ CABIN AT 75°F (23.9°C); 98 PASSENGERS AND CREW; NO GALLEY LOAD; ELECTRICAL LOAD: 6,984 BTU/HR; NO SOLAR LOAD. PRECONDITIONED AIRPLANE

ΔP_S = GAGE STATIC PRESSURE IN INCHES OF H_2O AT GROUND CONNECTION

1 BTU/HR = 0.252 KG-CAL/HR



5.7.1 CONDITIONED AIR REQUIREMENTS—STEADY STATE

MODELS 737-300, -500

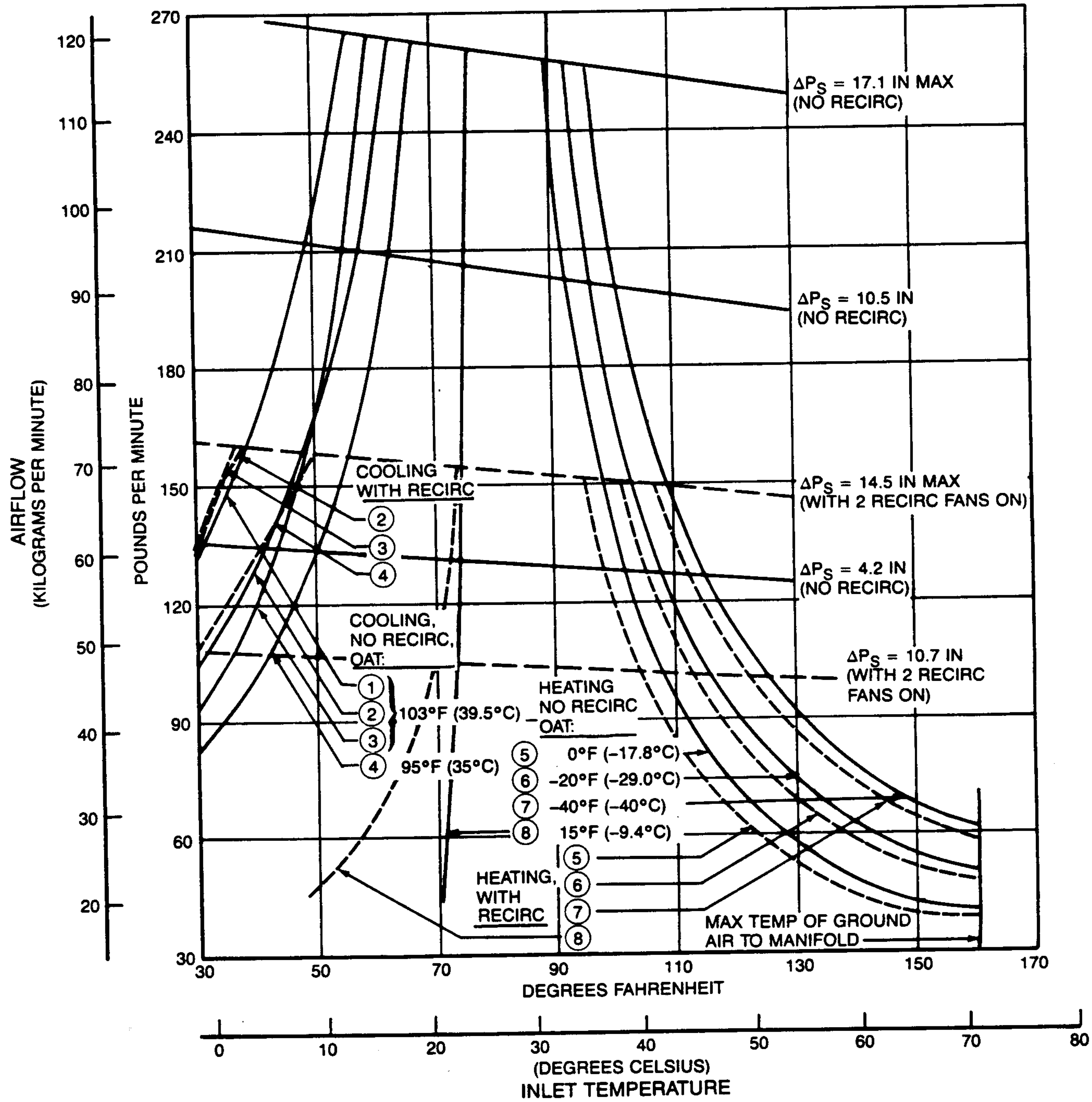
COOLING:

1. CABIN AT 75°F (23.9°C); 165 PASSENGERS AND CREW; NO GALLEY LOAD; SOLAR LOAD: 7,741 BTU/HR; ELECTRICAL LOAD: 10,955 BTU/HR
2. CABIN AT 80°F (26.7°C); OTHERWISE SAME AS 1
3. CABIN AT 70°F (21.2°C); 2 CREW MEMBERS; GALLEY LOAD: 8,200 BTU/HR; SOLAR LOAD: 7,741 BTU/HR; ELECTRICAL LOAD: 10,955 BTU/HR
4. CABIN AT 80°F (26.7°C); 117 PASSENGERS AND CREW; NO GALLEY LOAD; SOLAR LOAD: 7,741 BTU/HR; ELECTRICAL LOAD: 10,955 BTU/HR; PRECONDITIONED AIRPLANE

HEATING:

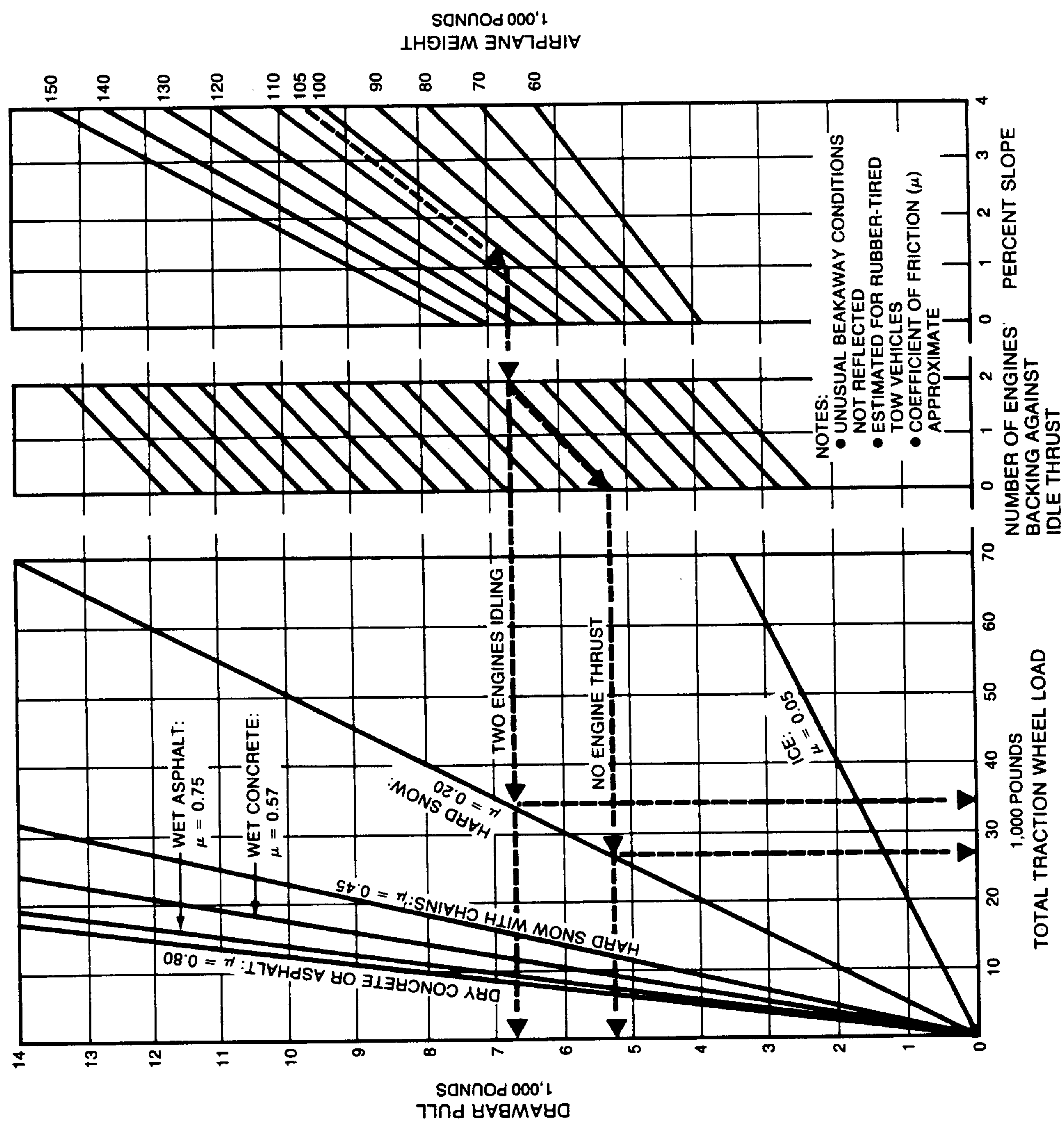
5, 6, 7. CABIN AT 75°F (23.9°C); NO CREW OR PASSENGERS; NO OTHER HEAT LOADS
8. CABIN AT 75°F (23.9°C); 117 PASSENGERS AND CREW; NO GALLEY LOAD; ELECTRICAL LOAD: 10,955 BTU/HR; NO SOLAR LOAD

ΔP_S = GAGE STATIC PRESSURE IN INCHES OF WATER AT GROUND CONNECTION.

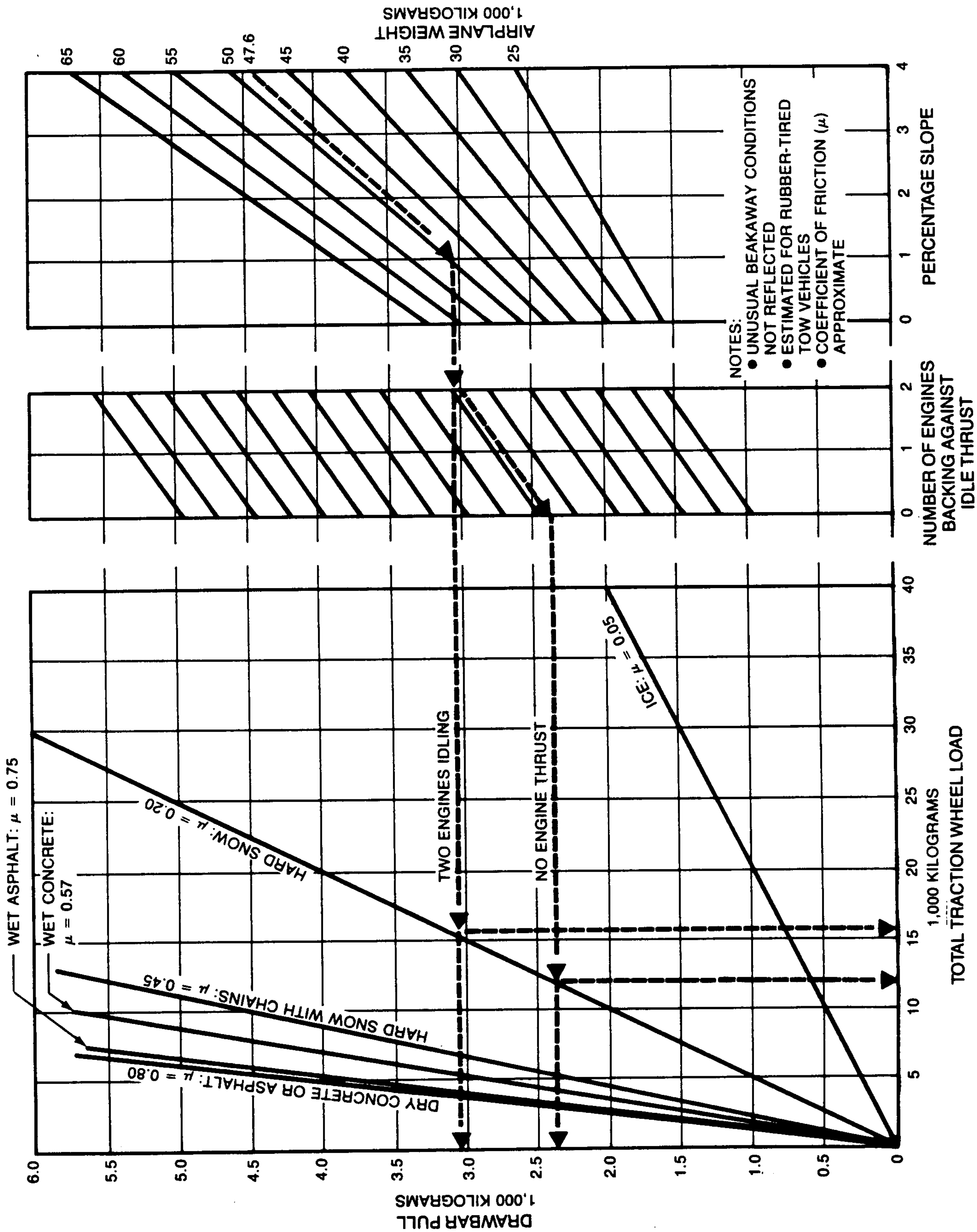


5.7.2 CONDITIONED AIR REQUIREMENTS—STEADY STATE

MODEL 737-400



5.8.1 GROUND TOWING REQUIREMENTS—ENGLISH UNITS
MODELS 737-300, -400, -500



5.8.2 GROUND TOWING REQUIREMENTS—METRIC UNITS

MODELS 737-300, -400, -500

6.0 JET ENGINE WAKE AND NOISE DATA

6.1 Jet Engine Exhaust Velocities and Temperatures

6.2 Airport and Community Noise

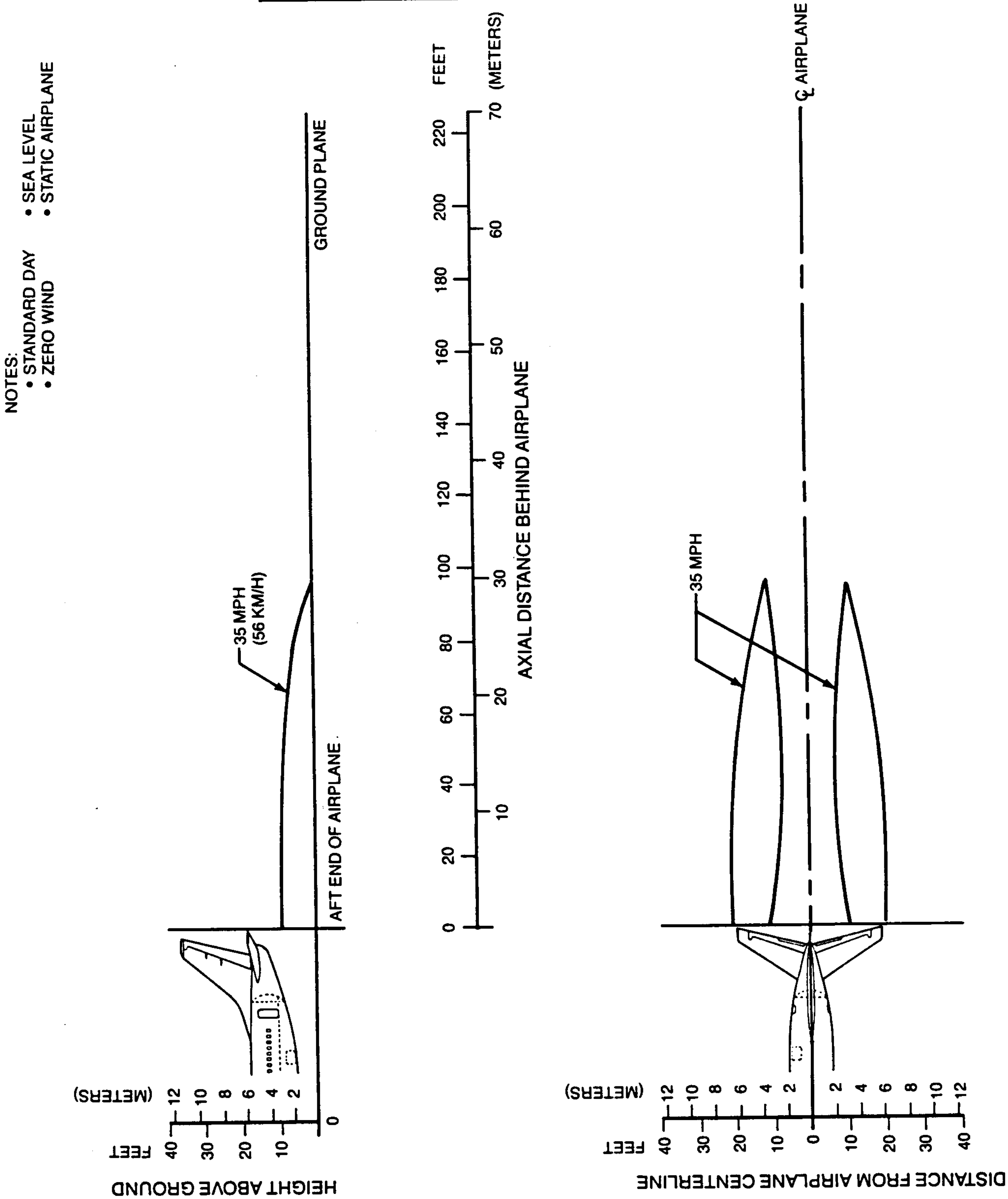
6.0 JET ENGINE WAKE AND NOISE DATA

6.1 Jet Engine Exhaust Velocities and Temperatures

This section shows estimated jet wake velocity and temperature contours behind a static 737-300 airplane with CFM56-3 engines at standard day, sea level, and zero wind conditions. The contour profiles are based on a three-dimensional viscous-flow computer program, which analytically predicts jet wake velocities and temperatures downstream of the exit nozzles. The computer program took into account ground effects and the interaction of the two jet wakes on the airplane.

The effect of the difference in engine configuration (thrust and locating with respect to the aft end of airplane) on the -400 and -500 is negligible. For planning purposes, the -300 contours can be used for the -400 and -500.

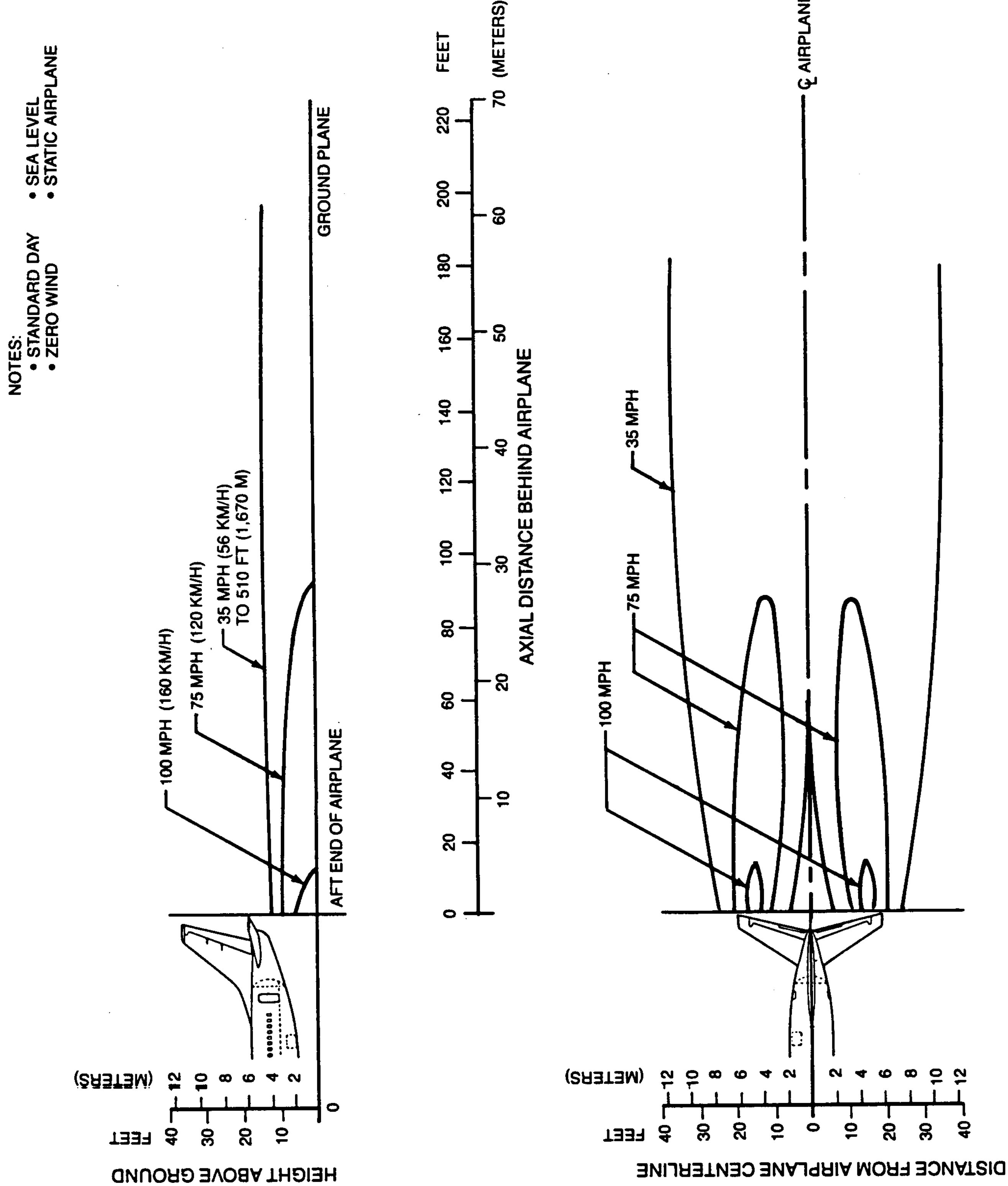
737-300 DATA SHOWN
DATA FOR THE 737-400 AND -500 WILL NOT BE
SIGNIFICANTLY DIFFERENT FROM THE -300



6.1.1 JET ENGINE EXHAUST VELOCITY CONTOURS (IDLE POWER)

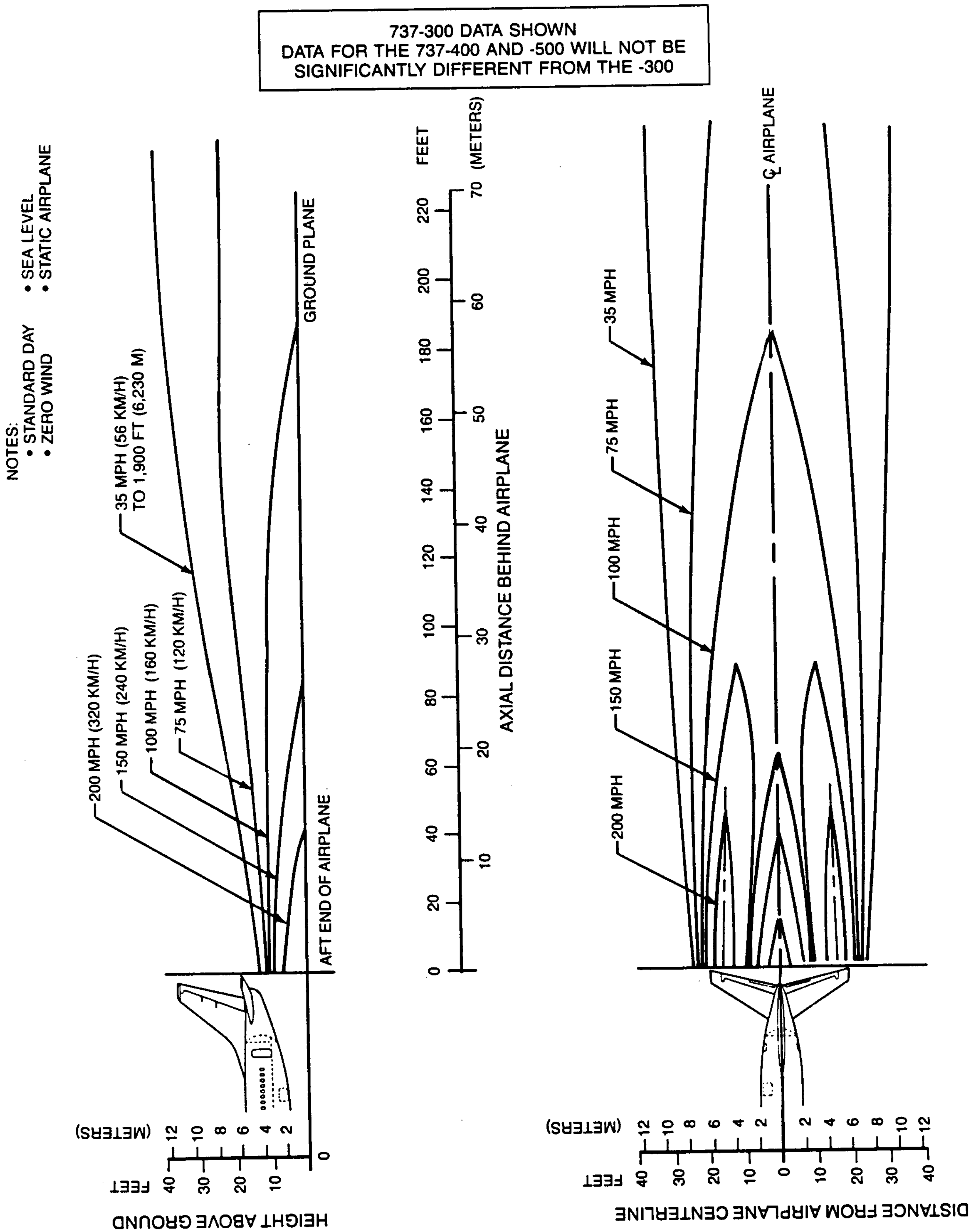
MODELS 737-300, -400, -500

737-300 DATA SHOWN
DATA FOR THE 737-400 AND -500 WILL NOT BE
SIGNIFICANTLY DIFFERENT FROM THE -300



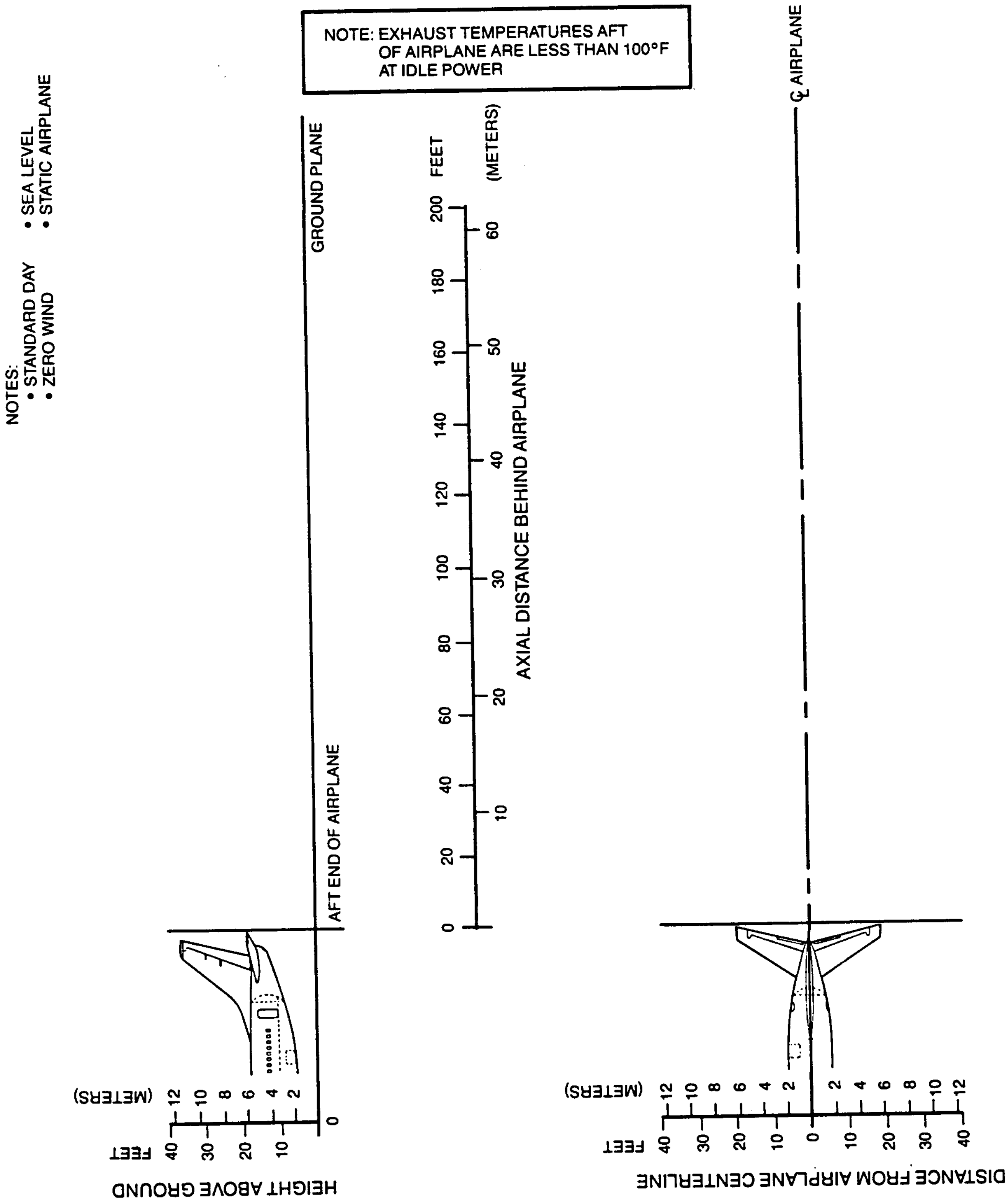
6.1.2 JET ENGINE EXHAUST VELOCITY CONTOURS (BREAKAWAY POWER)

MODELS 737-300, -400, -500



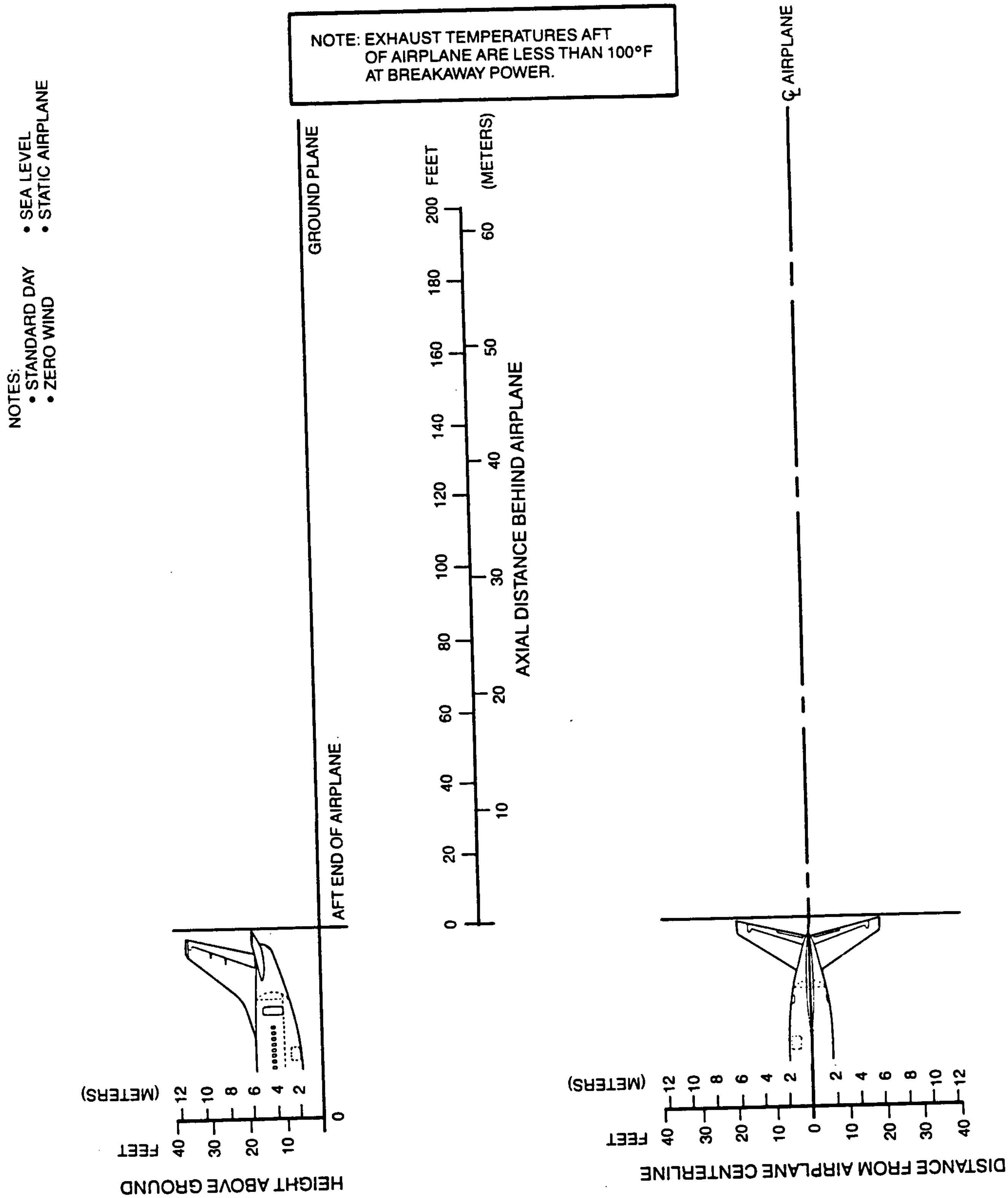
6.1.3 JET ENGINE EXHAUST VELOCITY CONTOURS (TAKEOFF POWER)

MODELS 737-300, -400, -500



6.1.4 JET ENGINE EXHAUST TEMPERATURE CONTOURS (IDLE POWER)

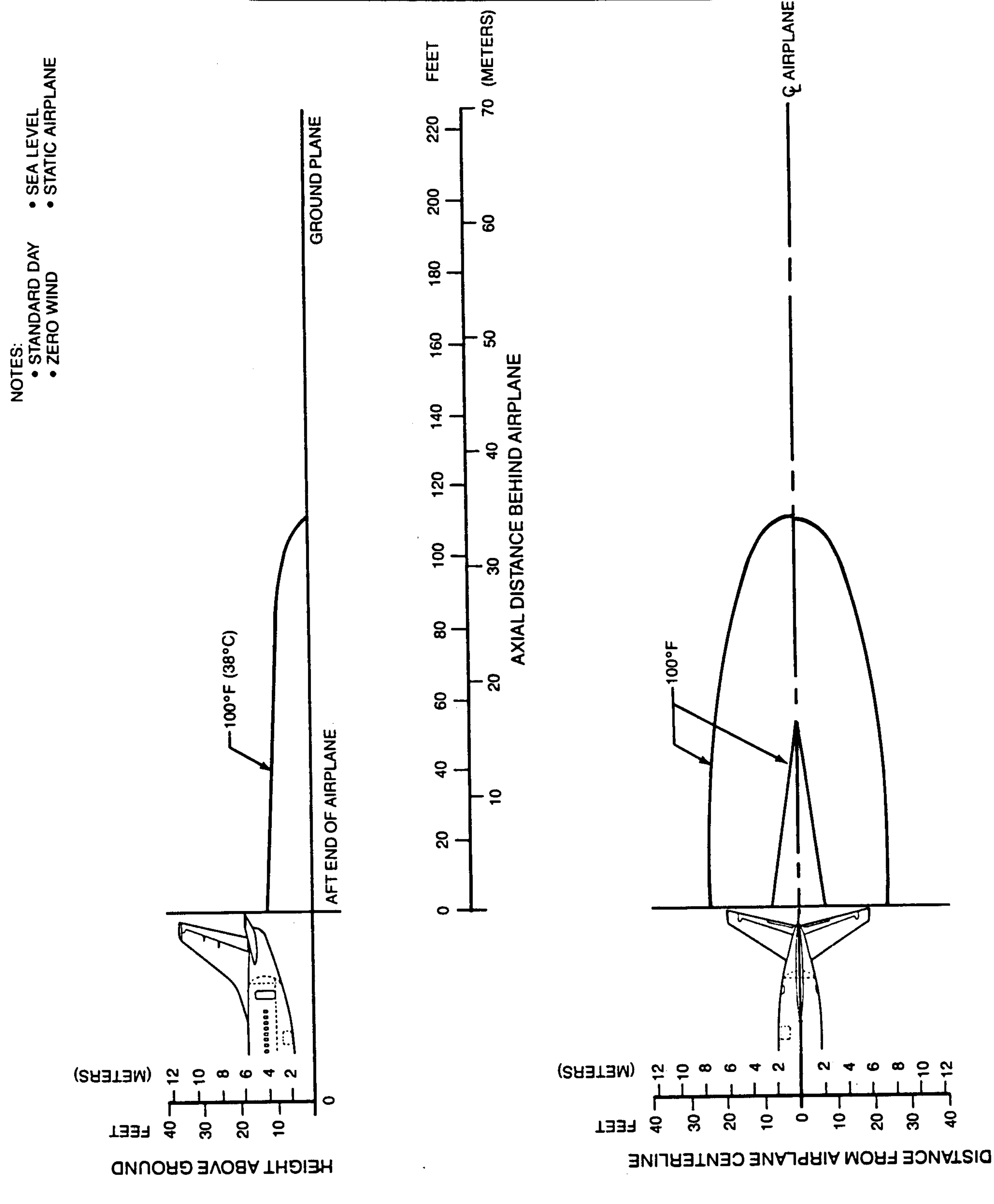
MODELS 737-300, -400, -500



6.1.5 JET ENGINE EXHAUST TEMPERATURE CONTOURS (BREAKAWAY POWER)

MODELS 737-300, -400, -500

737-300 DATA SHOWN
DATA FOR THE 737-400 AND -500 WILL NOT BE
SIGNIFICANTLY DIFFERENT FROM THE -300



6.1.6 JET ENGINE EXHAUST TEMPERATURE CONTOURS (TAKEOFF POWER)

MODELS 737-300, -400, -500

6.2 Airport and Community Noise

Aircraft noise is of major concern to the airport and community planner. The airport is a major element in the community's transportation system and, as such, is vital to its growth. However, the airport must also be a good neighbor, and this can be accomplished only with proper planning. Since aircraft noise extends beyond the boundaries of the airport, it is vital to consider the impact on surrounding communities. Many means have been devised to provide the planner with a tool to estimate the impact of airport operations. Too often they oversimplify noise to the point where the results become erroneous. Noise is not a simple subject; therefore, there are no simple answers.

The cumulative noise contour is an effective tool. However, care must be exercised to ensure that the contours, used correctly, estimate the noise resulting from aircraft operations conducted at an airport.

The size and shape of the single-event contours, which are inputs into the cumulative noise contours, are dependent upon numerous factors. They include the following:

1. Operational Factors
   (a) Aircraft Weight—Aircraft weight is dependent on distance to be traveled, en route winds, payload, and anticipated aircraft delay upon reaching the destination.
   (b) Engine Power Settings—The rates of ascent and descent and the noise levels emitted at the source are influenced by the power setting used.
   (c) Airport Altitude—Higher airport altitude will affect engine performance and thus can influence noise.

2. Atmospheric Conditions—Sound Propagation
   (a) Wind—With stronger headwinds, the aircraft can take off and climb more rapidly relative to the ground. Also, winds can influence the distribution of noise in surrounding communities.
   (b) Temperature and Relative Humidity—The absorption of noise in the atmosphere along the transmission path between the aircraft and the ground observer varies with both temperature and relative humidity.

3. Surface Condition—Shielding, Extra Ground Attenuation (EGA)

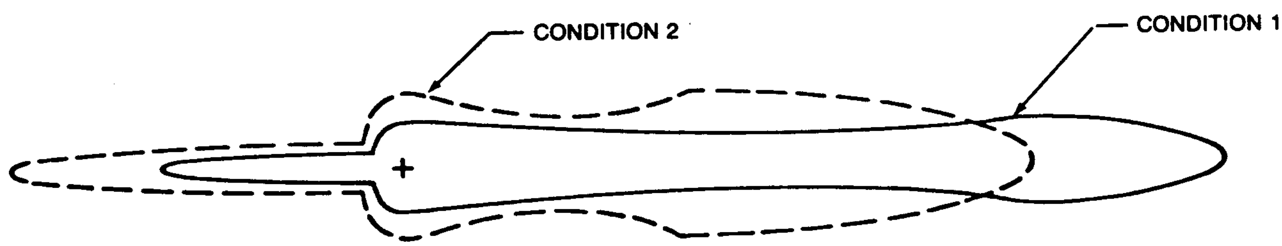
(a) Terrain—If the ground slopes down after takeoff or up before landing, noise will be reduced since the aircraft will be at a higher altitude above ground. Additionally, hills, shrubs, trees, and large buildings can act as sound buffers.

All these factors can alter the shape and size of the contours appreciably. To demonstrate the effect of some of these factors, estimated noise level contours for two different operating conditions are shown below. These contours reflect a given noise level upon a ground level plane at runway elevation.

Condition 1

Landing:
- Maximum Design Landing Weight
- 10-knot Headwind
- 3° Approach
- 84°F
- Humidity 15%

Takeoff:
- Maximum Design Takeoff Weight
- Zero Wind
- 84°F
- Humidity 15%



Condition 2

Landing:
- 85% Maximum Design Landing Weight
- 10-knot Headwind
- 3° Approach
- 59°F
- Humidity 70%

Takeoff:
- 80% Maximum Design Landing Weight
- 10-knot Headwind
- 59°F
- Humidity 70%

As indicated from these data, the contour size varies substantially with operating and atmospheric conditions. Most aircraft operations are, of course, conducted at less than maximum gross weights because average flight distances are much shorter than maximum aircraft range capability and average load factors are less than 100%. Therefore, in developing cumulative contours for planning purposes, it is recommended that the airlines serving a particular city be contacted to provide operational information.

In addition, there are no universally accepted methods for developing aircraft noise contours or for relating the acceptability of specific noise zones to specific land uses. It is therefore expected that noise contour data for particular aircraft and the impact assessment methodology will be changing. To ensure that the best currently available information of this type is used in any planning study, it is recommended that it be obtained directly from the Office of Environmental Quality in the Federal Aviation Administration in Washington, D.C.

It should be noted that the contours shown herein are only for illustrating the impact of operating and atmospheric conditions and do not represent the single-event contour of the family of aircraft described in this document. It is expected that the cumulative contours will be developed as required by planners using the data and methodology applicable to their specific study.

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7.0 PAVEMENT DATA

7.1 General Information

7.2 Landing-Gear Footprint

7.3 Maximum Pavement Loads

7.4 Landing-Gear Loading on Pavement

7.5 Flexible Pavement Requirements—U.S. Army Corps of Engineers Method (S-77-1)

7.6 Flexible Pavement Requirements—LCN Conversion

7.7 Rigid Pavement Requirements—Portland Cement Association Design Method

7.8 Rigid Pavement Requirements—LCN Conversion

7.9 Rigid Pavement Requirements—FAA Design

7.10 ACN/PCN Reporting System: Flexible and Rigid Pavements

7.11 Tire Inflation Charts

7.0 PAVEMENT DATA

7.1 General Information

A brief description of the pavement charts that follow will help in their use for airport planning. Each airplane configuration is depicted with a minimum range of four loads imposed on the main landing gear to aid in interpolation between the discrete values shown. All curves for any single chart represent data based on rated loads and tire pressures considered normal and acceptable by current aircraft tire manufacturer's standards. Tire pressures, where specifically designated on tables and charts, are at values obtained under loaded conditions as certified for commercial use.

Section 7.2 presents basic data on the landing-gear footprint configuration, maximum design taxi loads, and tire sizes and pressures.

Maximum pavement loads for certain critical conditions at the tire-ground interface are shown in Section 7.3.

Pavement requirements for commercial airplanes are customarily derived from the static analysis of loads imposed on the main landing gear struts. The charts in Section 7.4 are provided in order to determine these loads throughout the stability limits of the airplane at rest on the pavement. These main landing gear loads are used as the point of entry to the pavement design charts, interpolating load values where necessary.

The flexible pavement design curves (sec. 7.5) are based on procedures set forth in Instruction Report No. S-77-1, "Procedures for Development of CBR Design Curves," dated June 1977, and as modified according to the methods described in FAA Advisory Circular 150/5320-6C, "Airport Pavement Design and Evaluation," dated December 7, 1978. Instruction Report No. S-77-1 was prepared by the U.S. Army Corps of Engineers Waterways Experiment Station, Soils and Pavements Laboratory, Vicksburg, Mississippi. The line showing 10,000 coverages is used to calculate Aircraft Classification Number (ACN).

The following procedure is used to develop the curves, such as shown in Section 7.5:

1. Having established the scale for pavement depth at the bottom and the scale for CBR at the top, an arbitrary line is drawn representing 6,000 annual departures.

2. Values of the aircraft gross weight are then plotted.

3. Additional annual departure lines are then drawn based on the load lines of the aircraft gross weights already established.

4. An additional line representing 10,000 coverages (used to calculate the flexible-pavement Aircraft Classification Number) is also placed.

All Load Classification Number (LCN) curves (secs. 7.6 and 7.8) have been developed from a computer program based on data provided in International Civil Aviation Organization (ICAO) document 7920-AN/865/2, Aerodrome Manual, Part 2, "Aerodrome Physical Characteristics," 2nd edition, 1965. LCN values are shown directly for parameters of weight on main landing gear, tire pressure, and radius of relative stiffness (ℓ) for rigid pavement or pavement thickness or depth factor (h) for flexible pavement.

Rigid-pavement design curves (sec. 7.7) have been prepared with the Westergaard equation in general accordance with the procedures outlined in the Design of Concrete Airport Pavement, (1955 edition) by Robert G. Packard, published by the Portland Cement Association, 5420 Old Orchard Road, Skokie, Illinois 60077-1083. These curves are modified to the format described in the Portland Cement Association publication XP6705-2, Computer Program for Airport Pavement Design (Program PDILB), 1968, by Robert G. Packard.

The following procedure is used to develop the rigid-pavement design curves such as shown in Section 7.7:

1. Having established the scale for pavement thickness to the left and the scale for allowable working stress to the right, an arbitrary load line is drawn representing the main landing gear maximum weight to be shown.

2. Values of the subgrade modulus (k) are then plotted.

3. Additional load lines for the incremental values of weight on the main landing gear are drawn on the basis of the curve for k = 300, already established.

The rigid pavement design curves (sec. 7.9) have been developed based on methods used in the FAA Advisory Circular AC 150/5320-6C, 7 December 1978. The following procedure is used to develop the curves, such as shown in Section 7.9:

1. Having established the scale for pavement flexural strength on the left and temporary scale for pavement thickness on the right, an arbitrary load line is drawn representing the main landing gear maximum weight to be shown at 5,000 coverages.

2. Values of the subgrade modulus (k) are then plotted.

3. Additional load lines for the incremental values of weight are then drawn on the basis of the subgrade modulus curves already established.

4. The permanent scale for the rigid-pavement thickness is then placed. Lines for other than 5,000 coverages are established based on the aircraft pass-to-coverage ratio.

The ACN/PCN system (sec. 7.10) as referenced in Amendment 35 to ICAO Annex 14, "Aerodromes," 8th Edition, March 1983, provides a standardized international airplane/pavement rating system replacing the various S, T, TT, LCN, AUW, ISWL, etc., rating systems used throughout the world. ACN is the Aircraft Classification Number and PCN is the Pavement Classification Number. An aircraft having an ACN equal to or less than the PCN can operate on the pavement subject to any limitation on the tire pressure. Numerically, the ACN is two times the derived single-wheel load expressed in thousands of kilograms, where the derived single wheel load is defined as the load on a single tire inflated to 180 psi (1.25 MPa) that would have the same pavement requirements as the aircraft. Computationally, the ACN/PCN system uses the PCA program PDILB for rigid pavements and S-77-1 for flexible pavements to calculate ACN values. The method of pavement evaluation is left up to the airport, with the results of their evaluation presented as follows:

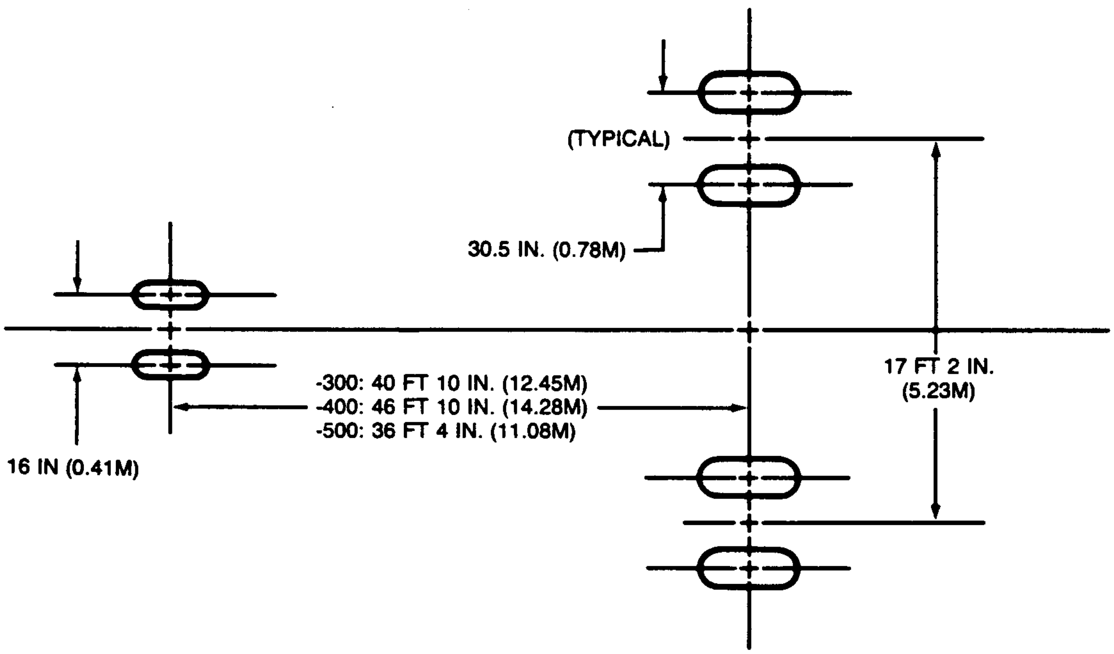
PCN	Pavement Type	Subgrade Category	Tire-Pressure Category	Evaluation Method
	R — Rigid	A — High	W — No Limit	T — Technical
	F — Flexible	B — Medium	X — To 217 psi (1.5 MPa)	U — Using aircraft
		C — Low	Y — To 145 psi (1.0 MPa)	
		D — Ultra Low	Z — To 73 psi (0.5 MPa)	

Sections 7.10.1 through 7.10.6 show the aircraft ACN values on flexible pavements. The four subgrade categories are:

Code A — High Strength — CBR 15
Code B — Medium Strength — CBR 10
Code C — Low Strength — CBR 6
Code D — Ultra Low Strength — CBR 3

Sections 7.10.7 through 7.10.12 show the aircraft ACN values on rigid pavements. The four subgrade categories are:

Code A — High Strength, k = 550 pci (150 MN/m^3)
Code B — Medium Strength, k = 300 pci (80 MN/m^3)
Code C — Low Strength, k = 150 pci (40 MN/m^3)
Code D — Ultra Low Strength, k = 75 pci (20 MN/m^3)



7.2.1 LANDING GEAR FOOTPRINT DATA—TIRE LAYOUT
MODELS 737-300, -400, -500

		737-300	737-400				737-500
MAX DESIGN TAXI WEIGHT	LB KG	125,000 THRU 140,000 56,700 THRU 63,500	139,000 63,050	143,000 64,850	144,000 65,300	150,500 68,250	116,000 THRU 134,000 52,600 THRU 60,800
PERCENTAGE OF WEIGHT ON MAIN GEAR		SEE SECTION 7.4	SEE SECTION 7.4				SEE SECTION 7.4

STANDARD PRESSURE TIRES

		737-300	737-400				737-500
NOSE GEAR TIRE SIZE	IN.	27 x 7.75 – 15 10PR	27 x 7.75 – 15 12PR				27 x 7.75 – 15 12PR
NOSE GEAR TIRE PRESSURE	PSI KG/SQ CM	166 11.67	171 12.02	172 12.09	173 12.16	177 12.44	186 13.08
MAIN GEAR TIRE SIZE	IN.	H40x14.5–19 24PR	H40x14.5–19 24PR	26PR	26PR	H42x16–19 26PR	H40x14.5–19 24PR
MAIN GEAR TIRE PRESSURE ①	PSI KG/SQ CM	180 THRU 201 12.65 THRU 14.13	203 14.27	209 14.69	211 14.83	185 13.00	170 THRU 194 11.95 THRU 13.64

LOW PRESSURE TIRES

		737-300	737-400				737-500
NOSE GEAR TIRE SIZE	IN.	27 x 7.75 – 15 10PR	27 x 7.75 – 15 12PR			(N/A)	27 x 7.75 – 15 12PR
NOSE GEAR TIRE PRESSURE	PSI KG/SQ CM	166 11.67	171 12.02	172 12.09	173 12.16	(N/A)	186 13.08
MAIN GEAR TIRE SIZE	IN	H42x16–19 24PR	H42x16–19 24PR			(N/A)	H42x16–19 24PR
MAIN GEAR TIRE PRESSURE①	PSI KG/SQ CM	152 THRU 170 10.69 THRU 11.95	171 12.02	176 12.37	177 12.44	(N/A)	144 THRU 164 10.12 THRU 11.53

NOTES: ① SEE SECTION 7.11 TIRE INFLATION CHART FOR TIRE PRESSURES AT INTERMEDIATE AIRPLANE WEIGHTS.

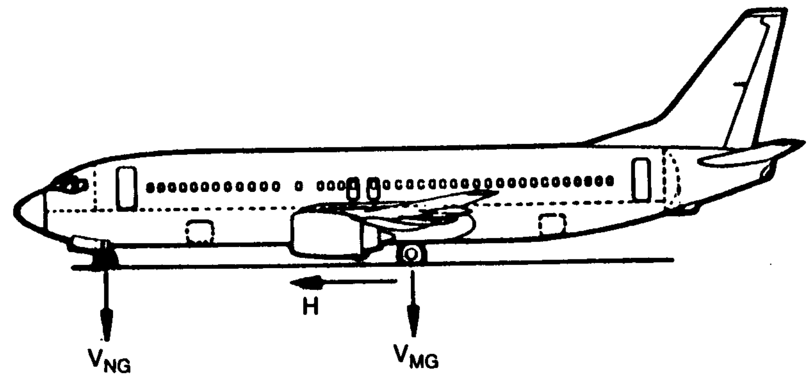
(N/A) = NOT AVAILABLE

7.2.2 LANDING GEAR FOOTPRINT DATA—TIRE SIZES AND PRESSURES

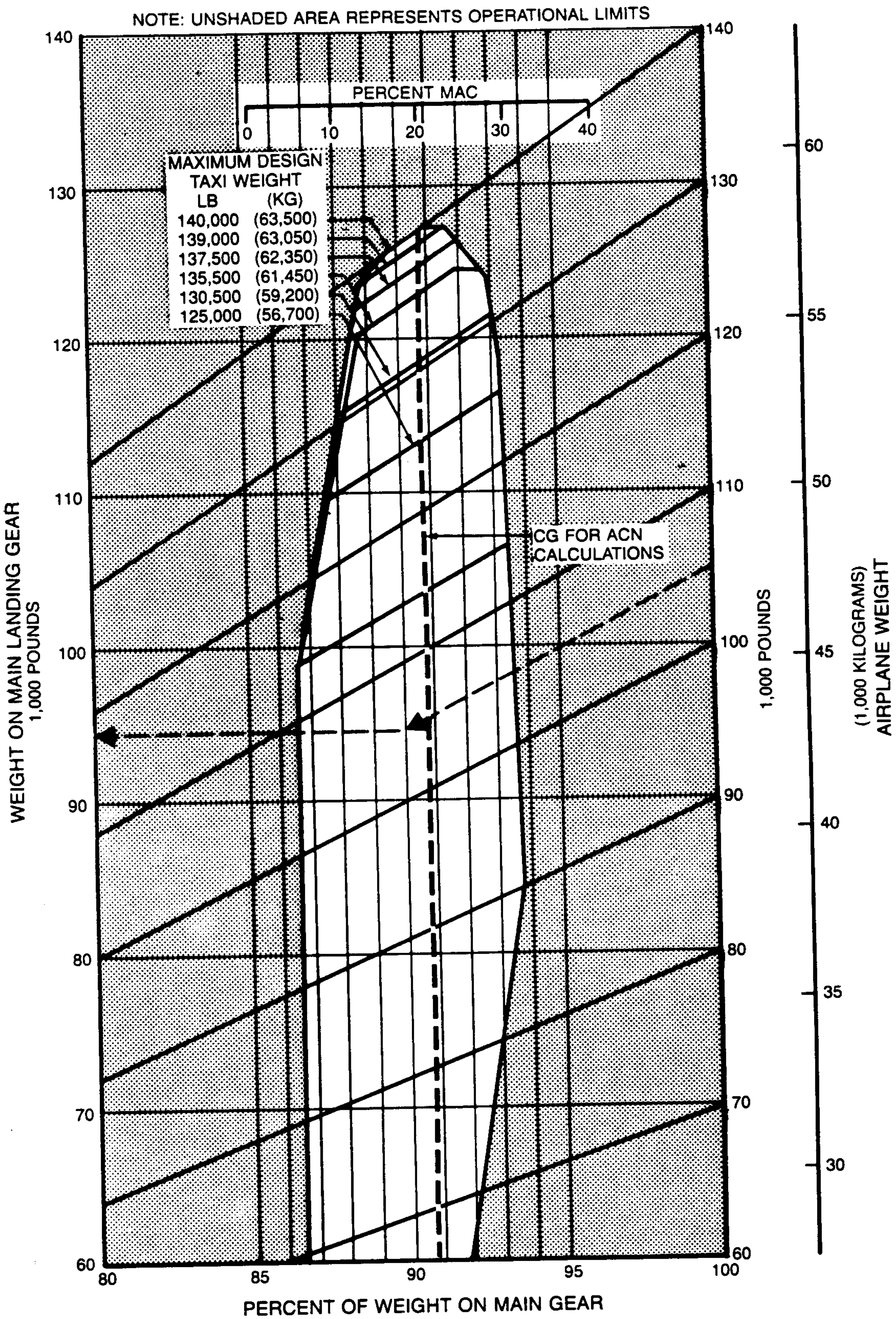
MODELS 737-300, -400, -500

7.3 MAXIMUM PAVEMENT LOADS
MODELS 737-300, -400, -500

V_{NG} = MAXIMUM VERTICAL NOSE GEAR GROUND LOAD AT MOST FORWARD C.G.
V_{MG} = MAXIMUM VERTICAL MAIN GEAR GROUND LOAD AT MOST AFT C.G.
H = MAXIMUM HORIZONTAL GROUND LOAD FROM BRAKING
NOTE: ALL LOADS ARE CALCULATED USING MAXIMUM DESIGN TAXI WEIGHT

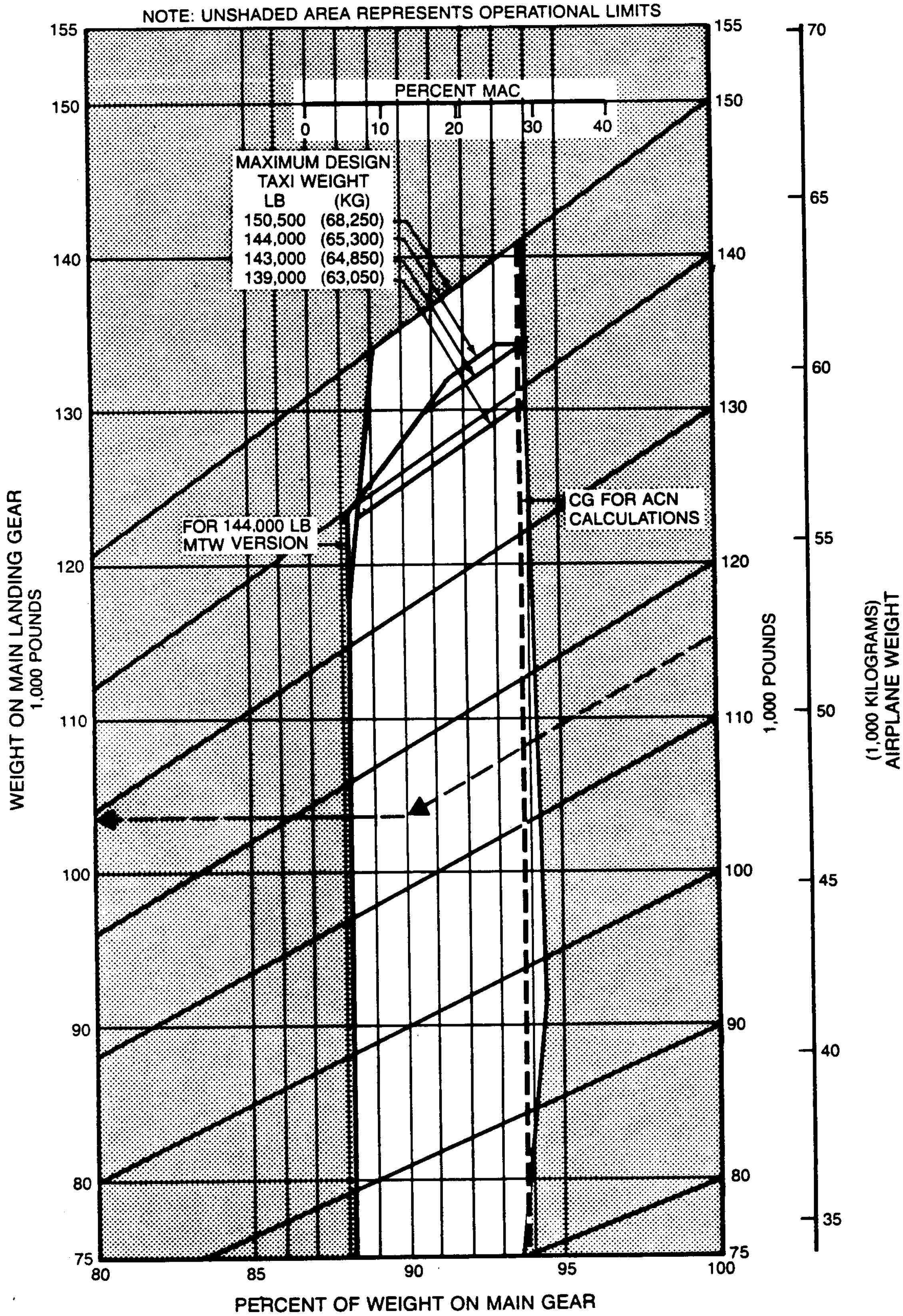


AIRPLANE MODEL	MAXIMUM DESIGN TAXI WEIGHT		V_{NG} STATIC AT MOST FORWARD C.G.		V_{NG} STATIC PLUS FORCE DUE TO BRAKING MOST FORWARD C.G.		V_{MG} PER STRUT MAX LOAD OCCURRING AT STATIC AFT C.G.		H PER STRUT AT STEADY BRAKING 10 FT/SEC/SEC DECELERATION		H PER STRUT AT INSTANTANEOUS BRAKING (COEFF OF FRICTION=0.8)	
	LB	KG	LB	KG	LB	KG	LB	KG	LB	KG	LB	KG
737-300	125,000	56,700	15,400	6,950	22,700	10,300	58,300	26,400	19,400	8,800	46,600	21,150
737-300	130,500	59,200	15,300	6,950	23,100	10,450	60,600	27,500	20,300	9,200	48,500	22,000
737-300	135,500	61,450	15,200	6,900	23,400	10,600	62,200	28,200	21,000	9,550	49,800	22,550
737-300	137,500	62,350	15,600	7,050	24,300	11,000	63,200	28,650	21,400	9,700	50,500	22,950
737-300	139,000	63,050	15,600	7,050	24,400	11,050	63,600	28,850	21,600	9,800	50,900	23,100
737-300	140,000	63,500	14,500	6,600	23,400	10,600	63,600	28,850	21,700	9,850	50,900	23,100
737-400	139,000	63,050	15,900	7,200	23,000	10,450	64,900	29,450	21,600	9,800	51,900	23,550
737-400	143,000	64,850	16,000	7,250	20,800	9,400	67,100	30,450	22,200	10,050	53,700	24,350
737-400	144,000	65,300	12,200	5,500	19,700	8,950	66,900	30,350	22,400	10,150	53,500	24,250
737-400	150,500	68,250	16,500	7,450	24,400	11,100	70,600	32,000	23,400	10,600	56,500	25,600
737-500	116,000	52,600	17,100	7,750	25,000	11,350	53,700	24,350	18,000	8,150	42,900	19,450
757-500	125,000	56,700	17,300	7,850	25,800	11,700	57,700	26,200	19,400	8,800	46,200	20,950
737-500	134,000	60,800	17,300	7,850	26,400	12,000	61,800	28,050	20,800	9,450	49,400	22,400



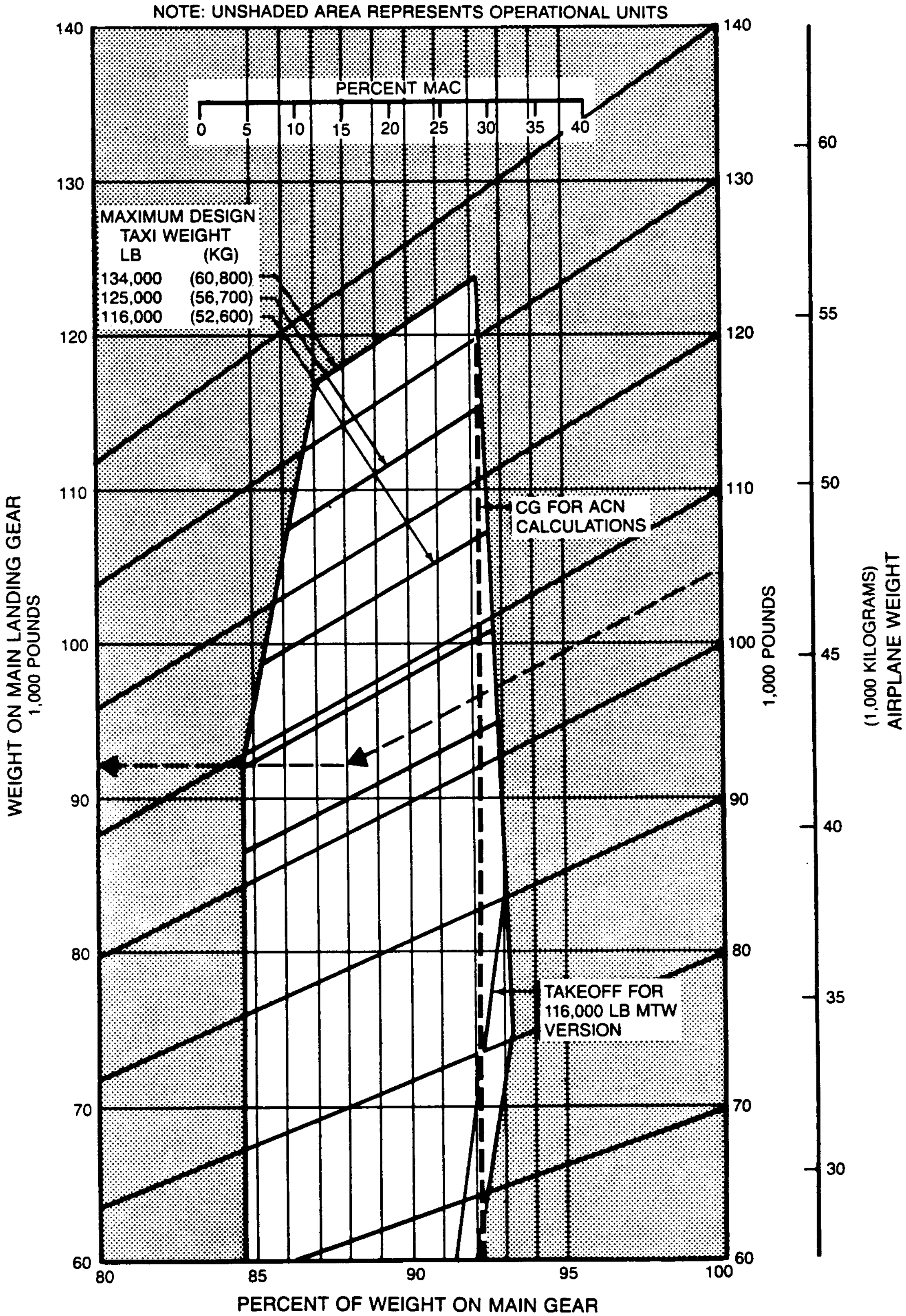
7.4.1 LANDING GEAR LOADING ON PAVEMENT

MODEL 737-300



7.4.2 LANDING GEAR LOADING ON PAVEMENT

MODEL 737-400



7.4.3 LANDING GEAR LOADING ON PAVEMENT

MODEL 737-500

7.5 Flexible-Pavement Requirements—U.S. Army Corps of Engineers Method (S-77-1)

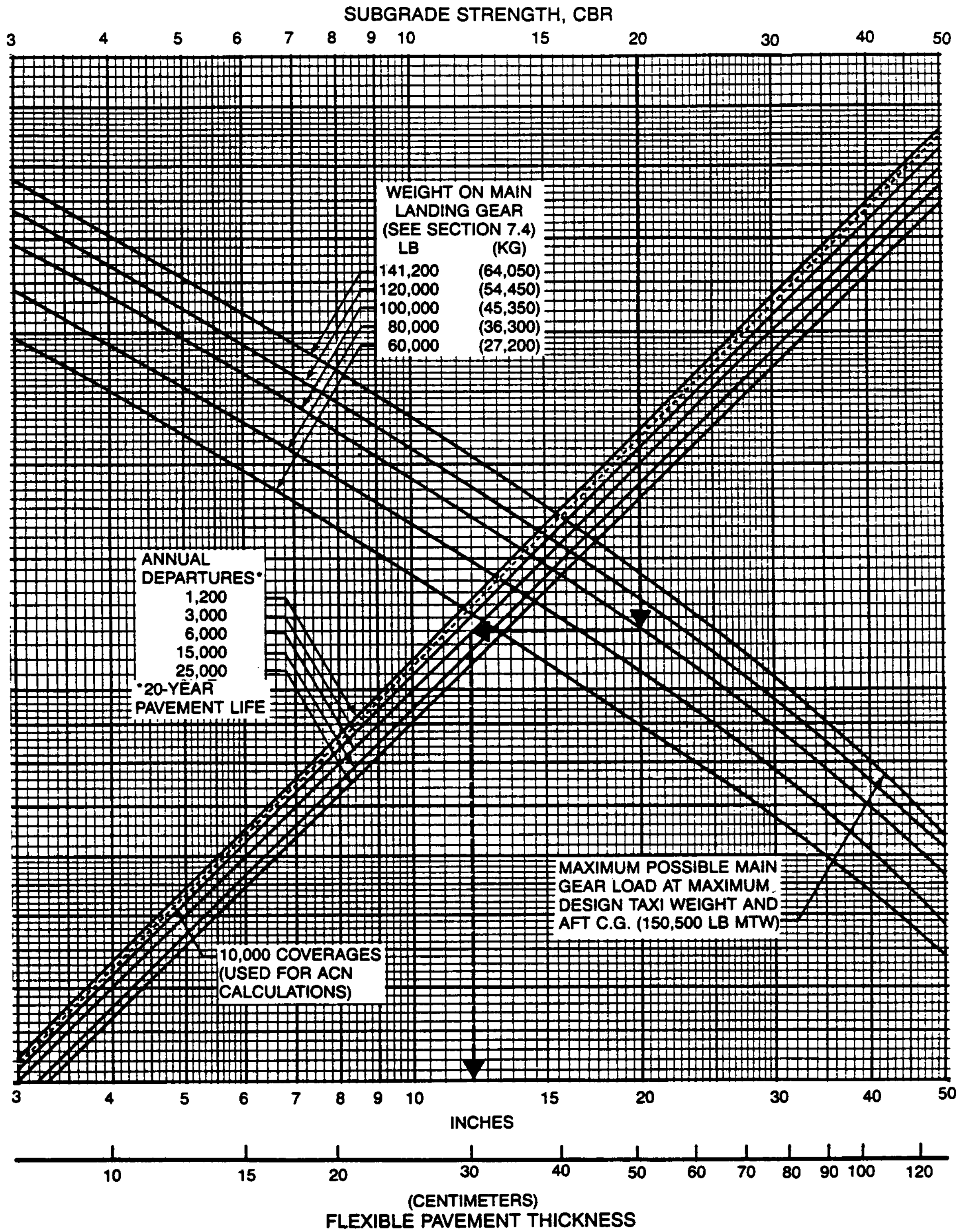
The following flexible-pavement design chart is prepared for both standard-pressure and low-pressure tires. Each chart presents the data of five incremental main gear weights at the minimum tire pressure required at the maximum design taxi weight.

In the example shown on the next page, for a CBR of 20 and an annual departure level of 6,000, the required flexible pavement thickness for an airplane with a main gear load of 100,000 pounds is 12.0 inches.

The line showing 10,000 coverages is used for ACN calculations (see sec. 7.10).

The FAA design method uses a similar procedure using total airplane weight instead of weight on main landing gear. The equivalent main gear loads for a given airplane weight can be calculated from Section 7.4.

NOTE: • TIRES—H40x14.5-19 24PR, 26PR, H42x16-19 24PR, 26PR



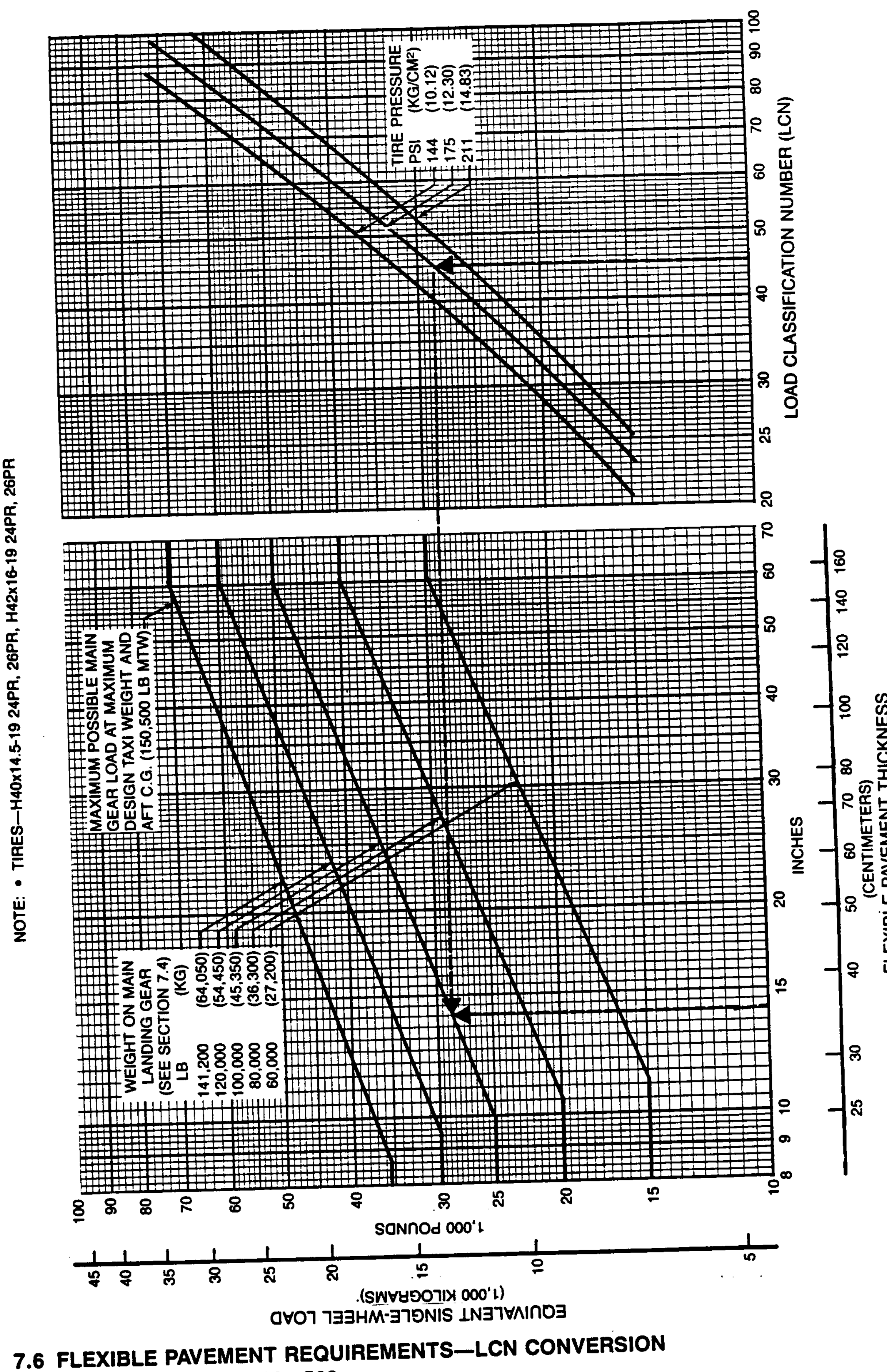
7.5 FLEXIBLE PAVEMENT REQUIREMENTS—U.S. ARMY CORPS OF ENGINEERS DESIGN METHOD (S-77-1) AND F.A.A. DESIGN METHOD
MODELS 737-300, -400, -500

7.6 Flexible-Pavement Requirements—LCN Conversion

To determine the airplane weight that can be accommodated on a particular flexible pavement, both the load classification number (LCN) and the thickness of the pavement must be known.

In the example shown on the next page, flexible-pavement thickness (h) is shown at 14 in with an LCN of 45. For these conditions, the apparent maximum allowable weight permissible on the main gear is 100,000 lb.

NOTE: If the resultant aircraft LCN is not more than 10% above the published pavement LCN, the bearing strength of the pavement can be considered sufficient for unlimited use by the airplane. The figure of 10% has been chosen as representing the lowest degree of variation in LCN which is significant. (ref.: ICAO Aerodrome Manual, Part 2, "Aerodrome Physical Characteristics," chapter 4, paragraph 4.1.5.7v, 2nd edition, 1965.)



7.6 FLEXIBLE PAVEMENT REQUIREMENTS—LCN CONVERSION

MODELS 737-300, -400, -500

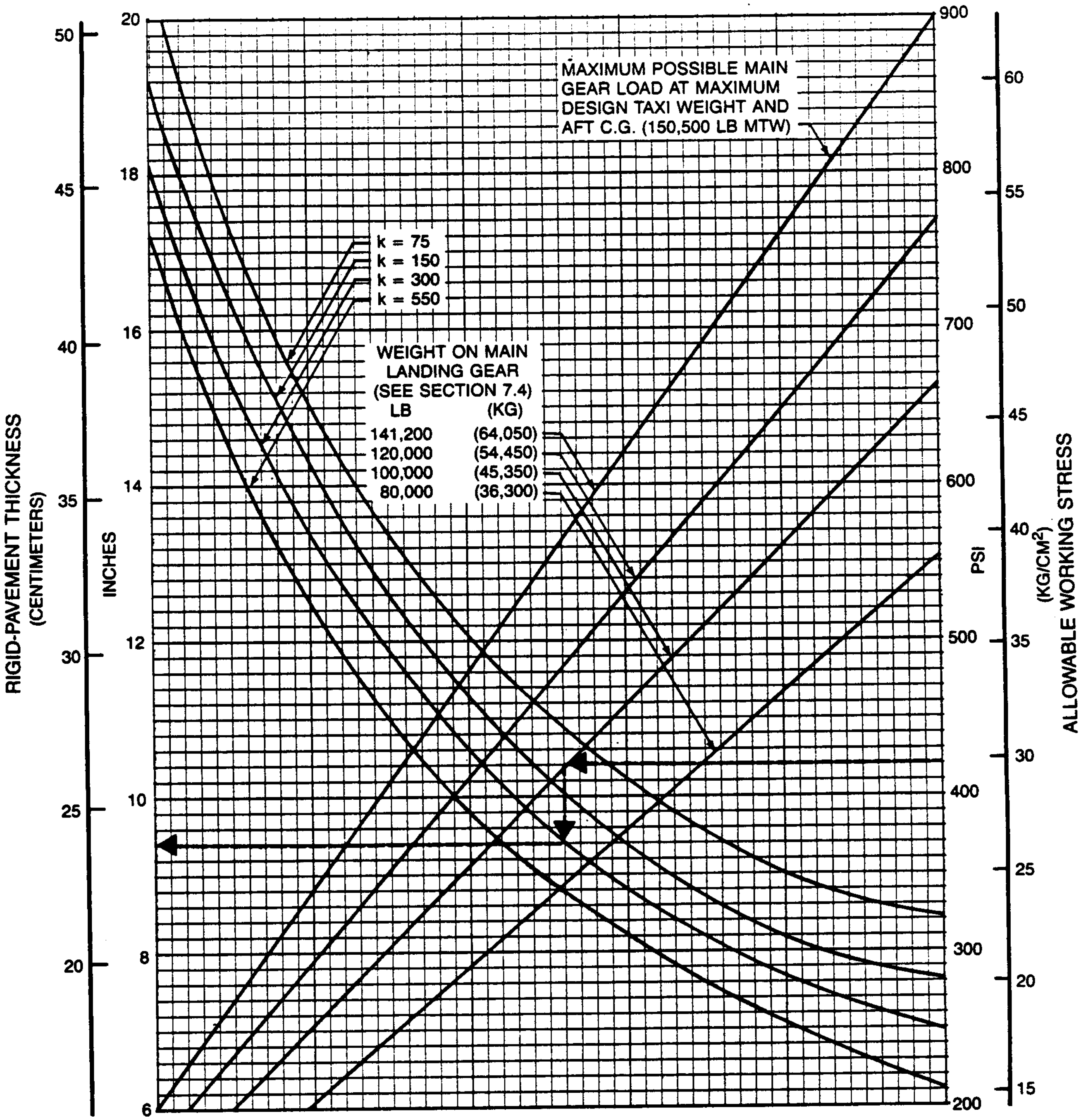
7.7 Rigid Pavement Requirements—Portland Cement Association Design Method

Rigid-pavement requirements are based on the Portland Cement Association computerized version of the methods of "Design of Concrete Airport Pavement" (Portland Cement Association, 1955) as described in XP6705-2, "Computer Program for Airport Pavement Design," by Robert G. Packard, Portland Cement Association 1968.

The following rigid-pavement design charts are prepared for both standard-pressure and low-pressure tires. Each chart presents the data of four incremental main-gear weights at the minimum tire pressure required at the maximum design taxi weight.

In the example shown on the next page, for an allowable working stress of 420 psi, a main gear load of 100,000 lb, and a subgrade strength k of 300, the required rigid-pavement thickness is 9.4 in.

NOTE: • TIRES—H40x14.5-19 24PR, 26PR, H42x16-19 26PR



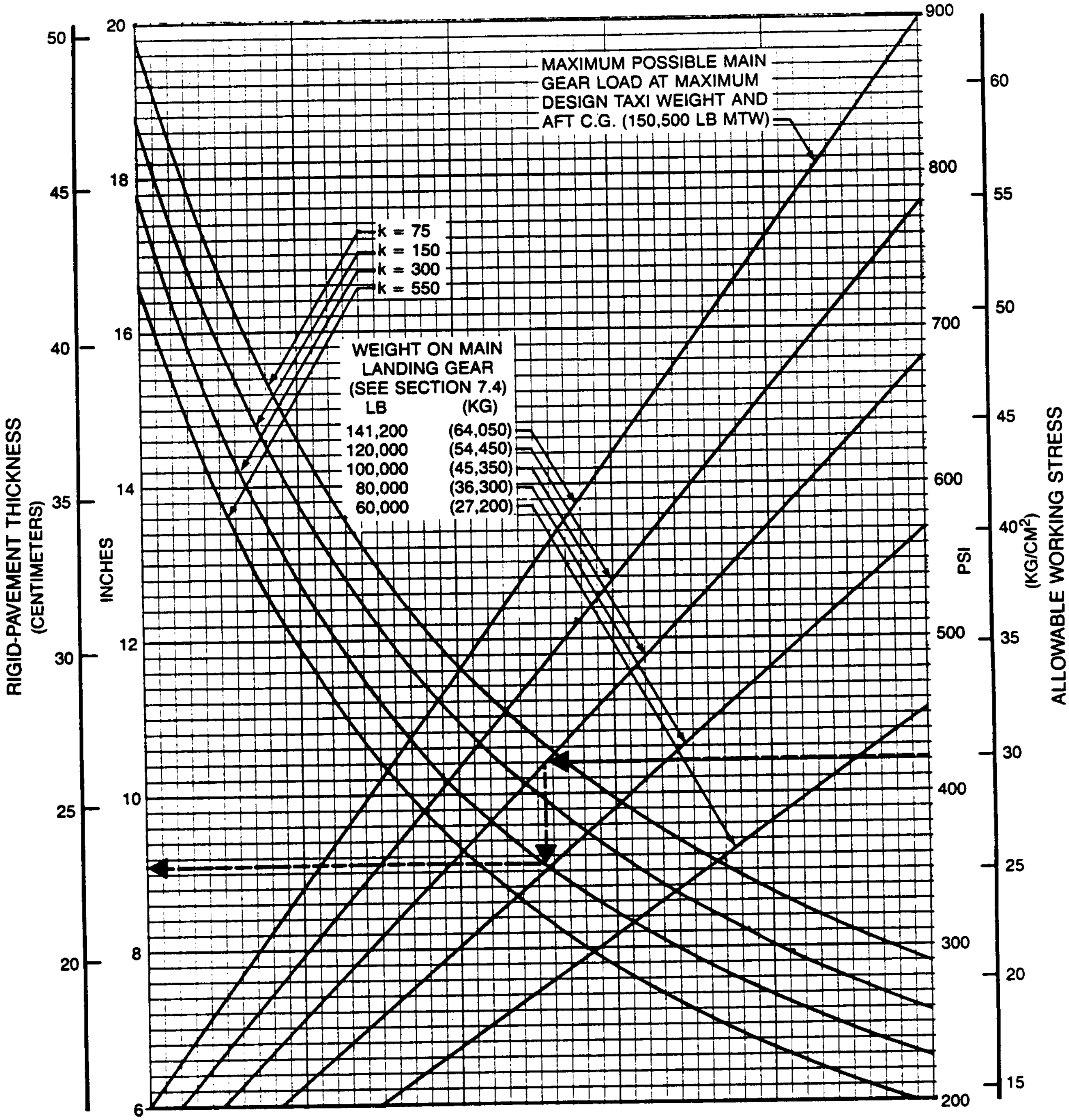
NOTE:
THE VALUES OBTAINED BY USING THE MAXIMUM LOAD REFERENCE LINE AND ANY VALUE OF k ARE EXACT. FOR LOADS LESS THAN MAXIMUM, THE CURVES ARE EXACT FOR k = 300 BUT DEVIATE SLIGHTLY FOR OTHER VALUES OF k.

REFERENCES:
"DESIGN OF CONCRETE AIRPORT PAVEMENT" AND "COMPUTER PROGRAM FOR AIRPORT PAVEMENT DESIGN - PROGRAM PDILB" PORTLAND CEMENT ASSN.

7.7.1 RIGID PAVEMENT REQUIREMENTS—PORTLAND CEMENT ASSOCIATION DESIGN METHOD

MODELS 737-300, -400, -500

NOTE: • TIRES—H42x16-19 24PR, 26PR



NOTE:
THE VALUES OBTAINED BY USING THE MAXIMUM LOAD REFERENCE LINE AND ANY VALUE OF k ARE EXACT. FOR LOADS LESS THAN MAXIMUM, THE CURVES ARE EXACT FOR k = 300 BUT DEVIATE SLIGHTLY FOR OTHER VALUES OF k.

REFERENCES:
"DESIGN OF CONCRETE AIRPORT PAVEMENT" AND "COMPUTER PROGRAM FOR AIRPORT PAVEMENT DESIGN - PROGRAM PDILB" PORTLAND CEMENT ASSN.

7.7.2 RIGID PAVEMENT REQUIREMENTS—PORTLAND CEMENT ASSOCIATION DESIGN METHOD
MODELS 737-300, -400, -500 (LOW PRESSURE TIRES)

7.8 Rigid-Pavement Requirements—LCN Conversion

To determine the aircraft weight that can be accommodated on a particular rigid pavement, both the LCN of the pavement and the radius of relative stiffness (ℓ) of the pavement must be known.

In an example shown in Section 7.8.2 the rigid-pavement radius of relative stiffness (ℓ) is shown at 40 in with an LCN of 60. For these conditions, the apparent maximum allowable weight permissible on the main landing gear is 120,000 lb for an airplane with 144 psi main gear tires.

NOTE: If the resultant aircraft LCN is not more than 10% above the published pavement LCN, the bearing strength of the pavement can be considered sufficient for unlimited use by the airplane. The figure of 10% has been chosen as representing the lowest degree of variation in LCN which is significant. (ref.: ICAO Aerodrome Manual, Part 2, "Aerodrome Physical Characteristics," chapter 4, paragraph 4.1.5.7v, 2nd edition, 1965.)

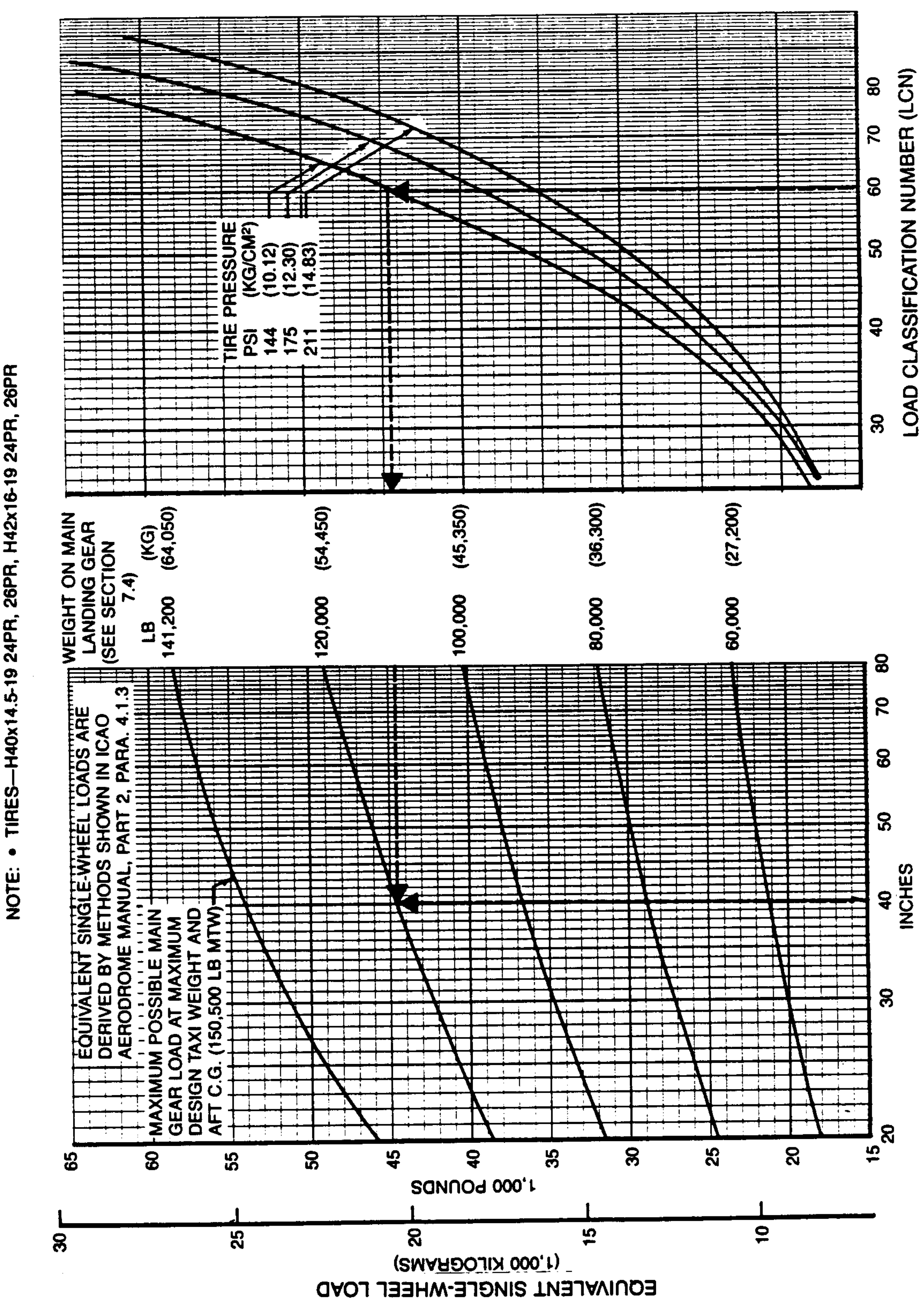
RADIUS OF RELATIVE STIFFNESS (ℓ)
VALUES IN INCHES

$$\ell = \sqrt[4]{\frac{Ed^3}{12(1-\mu^2)k}} = 24.1652 \sqrt[4]{\frac{d^3}{k}}$$

WHERE: E = YOUNG'S MODULUS = 4×10^6 PSI
k = SUBGRADE MODULUS, LB/IN.^{3}
d = RIGID-PAVEMENT THICKNESS, IN.
μ = POISSON'S RATIO = 0.15

d (IN.)	k = 75	k = 100	k = 150	k = 200	k = 250	k = 300	k = 350	k = 400	k = 500	k = 550
6.0	31.48	29.30	26.47	24.63	23.30	22.26	21.42	20.72	19.59	19.13
6.5	33.43	31.11	28.11	26.16	24.74	23.64	22.74	22.00	20.80	20.31
7.0	35.34	32.89	29.72	27.65	26.15	24.99	24.04	23.25	21.99	21.47
7.5	37.22	34.63	31.29	29.12	27.54	26.32	25.32	24.49	23.16	22.61
8.0	39.06	36.35	32.85	30.57	28.91	27.62	26.58	25.70	24.31	23.74
8.5	40.88	38.04	34.37	31.99	30.25	28.91	27.81	26.90	25.44	24.84
9.0	42.67	39.71	35.88	33.39	31.58	30.17	29.03	28.08	26.55	25.93
9.5	44.43	41.35	37.36	34.77	32.89	31.42	30.23	29.24	27.65	27.00
10.0	46.18	42.97	38.83	36.14	34.17	32.65	31.42	30.39	28.74	28.06
10.5	47.90	44.57	40.28	37.48	35.45	33.87	32.59	31.52	29.81	29.11
11.0	49.60	46.16	41.71	38.81	36.71	35.07	33.75	32.64	30.87	30.14
11.5	51.28	47.72	43.12	40.13	37.95	36.26	34.89	33.74	31.91	31.16
12.0	52.94	49.27	44.52	41.43	39.18	37.44	36.02	34.84	32.95	32.17
12.5	54.59	50.80	45.90	42.72	40.40	38.60	37.14	35.92	33.97	33.17
13.0	56.22	52.32	47.27	43.99	41.61	39.75	38.25	36.99	34.99	34.16
13.5	57.83	53.82	48.63	45.26	42.80	40.89	39.35	38.06	35.99	35.14
14.0	59.43	55.31	49.98	46.51	43.98	42.02	40.44	39.11	36.99	36.12
14.5	61.02	56.78	51.31	47.75	45.16	43.15	41.51	40.15	37.97	37.08
15.0	62.59	58.25	52.63	48.98	46.32	44.26	42.58	41.19	38.95	38.03
15.5	64.15	59.70	53.94	50.20	47.47	45.36	43.64	42.21	39.92	38.98
16.0	65.69	61.13	55.24	51.41	48.62	46.45	44.70	43.23	40.88	39.92
16.5	67.23	62.56	56.53	52.61	49.75	47.54	45.74	44.24	41.84	40.85
17.0	68.75	63.98	57.81	53.80	50.88	48.61	46.77	45.24	42.78	41.78
17.5	70.26	65.38	59.48	54.98	52.00	49.68	47.80	46.23	43.72	42.70
18.0	71.76	66.78	60.35	56.16	53.11	50.74	48.82	47.22	44.66	43.61
19.0	74.73	69.54	62.84	58.48	55.31	52.84	50.84	49.17	46.51	45.41
20.0	77.66	72.27	65.30	60.77	57.47	54.92	52.84	51.10	48.33	47.19
21.0	80.55	74.97	67.74	63.04	59.62	56.96	54.81	53.01	50.13	48.95
22.0	83.41	77.63	70.14	65.28	61.73	58.98	56.75	54.89	51.91	50.69
23.0	86.24	80.26	72.52	67.49	63.83	60.98	58.68	56.75	53.67	52.41
24.0	89.04	82.86	74.87	69.68	65.90	62.96	60.58	58.59	55.41	54.11
25.0	91.81	85.44	77.20	71.84	67.95	64.92	62.46	60.41	57.14	55.79

7.8.1 RADIUS OF RELATIVE STIFFNESS (REFERENCE: PORTLAND CEMENT ASSOCIATION)

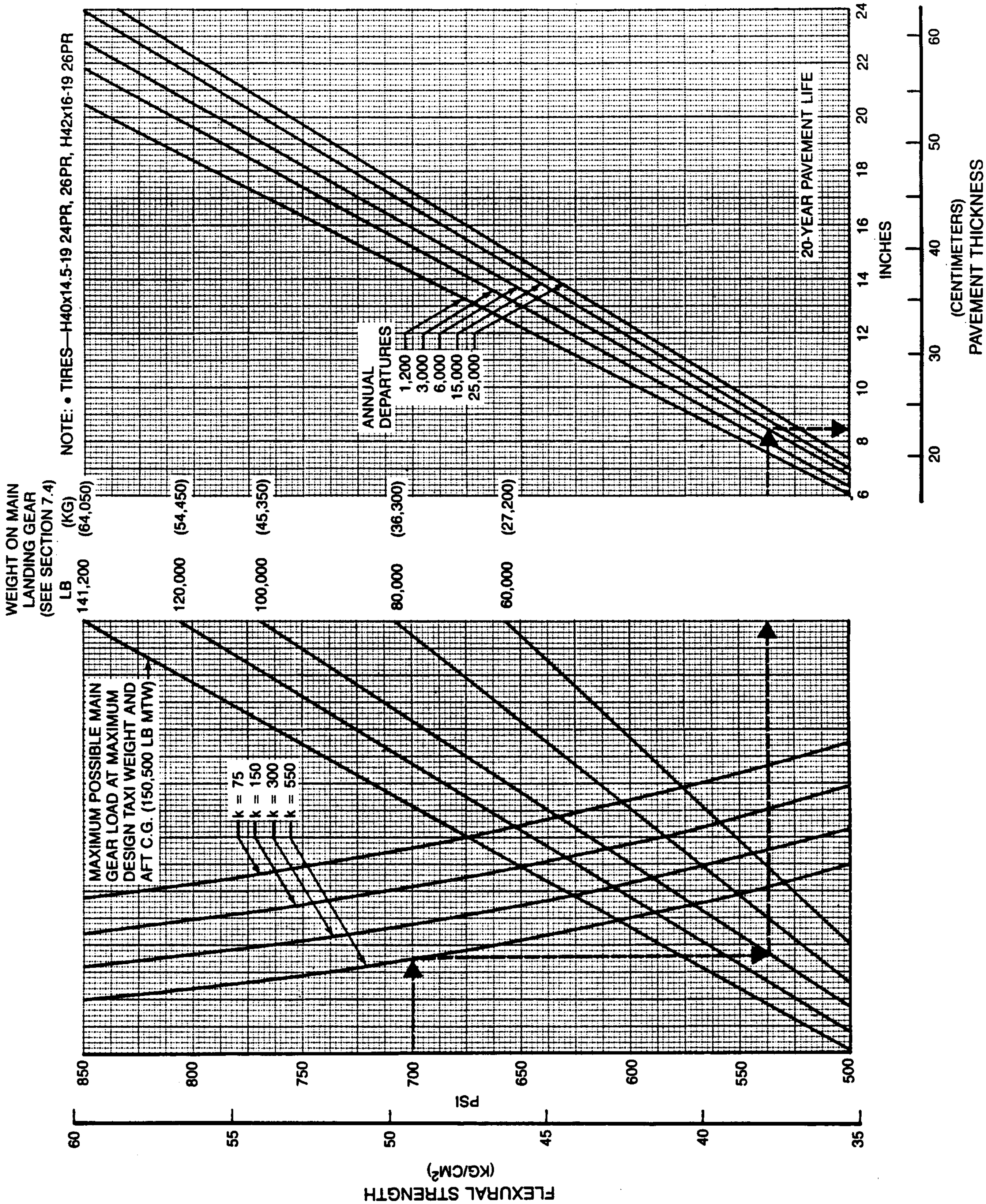


7.8.2 RIGID PAVEMENT REQUIREMENTS—LCN CONVERSION
MODELS 737-300, -400, -500

7.9 Rigid-Pavement Requirements: FAA Design Method

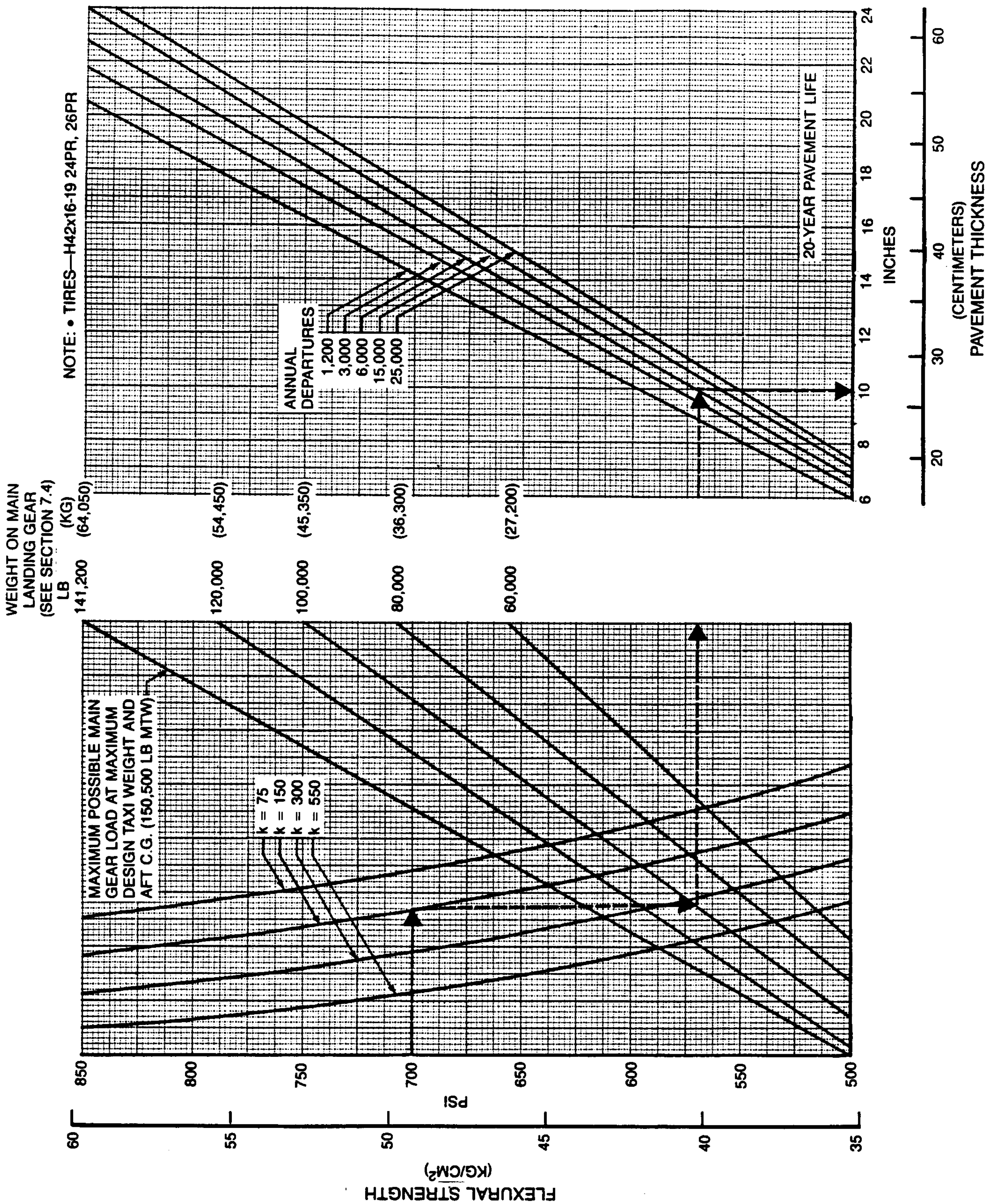
The following rigid-pavement design charts present the data of five incremental main-gear weights at the minimum tire pressure required at the maximum design taxi weight.

In the example shown on the next page, the pavement flexural strength is shown at 700 psi, the subgrade strength is shown at k = 550, and the annual departure level is 6,000. For these conditions, the required rigid-pavement thickness for an airplane with a main-gear load of 100,000 lb is 8.6 in.



7.9.1 RIGID PAVEMENT REQUIREMENTS—FAA METHOD

MODELS 737-300, -400, -500

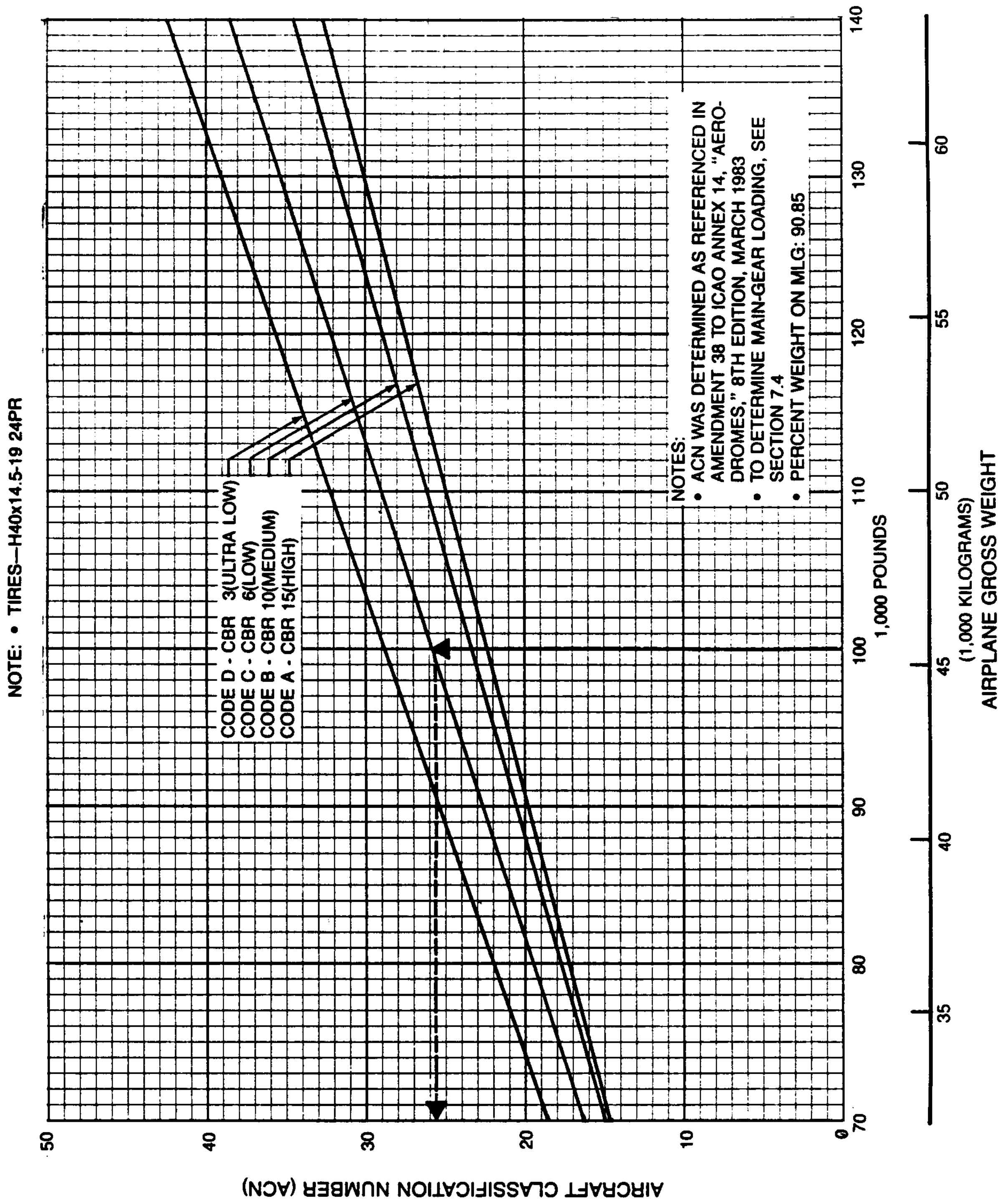


7.9.2 RIGID PAVEMENT REQUIREMENTS—FAA METHOD
MODELS 737-300, -400, -500 (LOW PRESSURE TIRES)

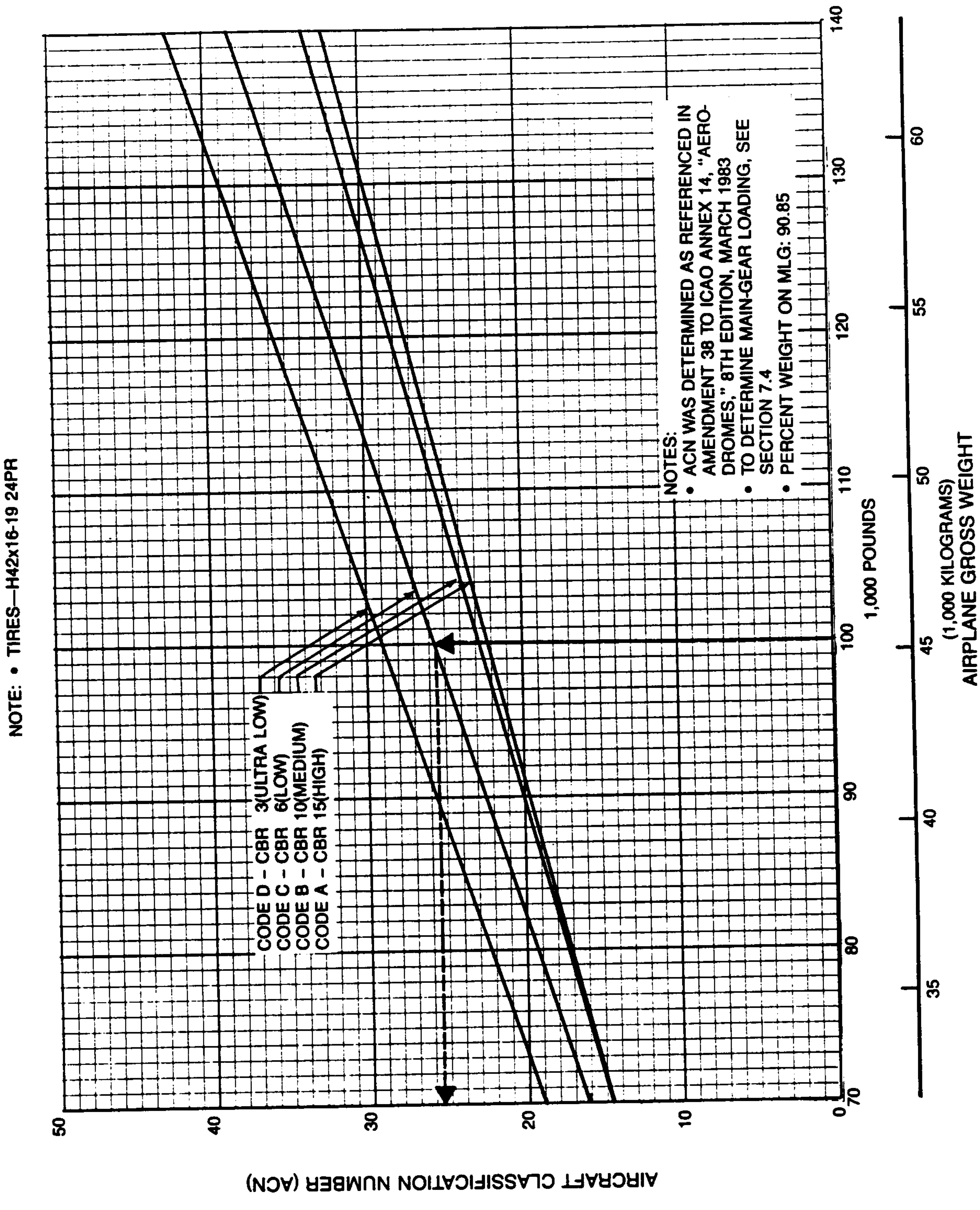
7.10 ACN/PCN Reporting System: Flexible and Rigid Pavements

To determine the ACN of an aircraft on flexible or rigid pavement, both the aircraft gross weight and the subgrade strength category must be known. In the chart shown on the next page (7.10.1), for an aircraft gross weight of 100,000 lb and low subgrade strength, the ACN on the flexible pavement is 26. Referring to 7.10.7, for the same gross weight and subgrade strength, the ACN on the rigid pavement is 28.4.

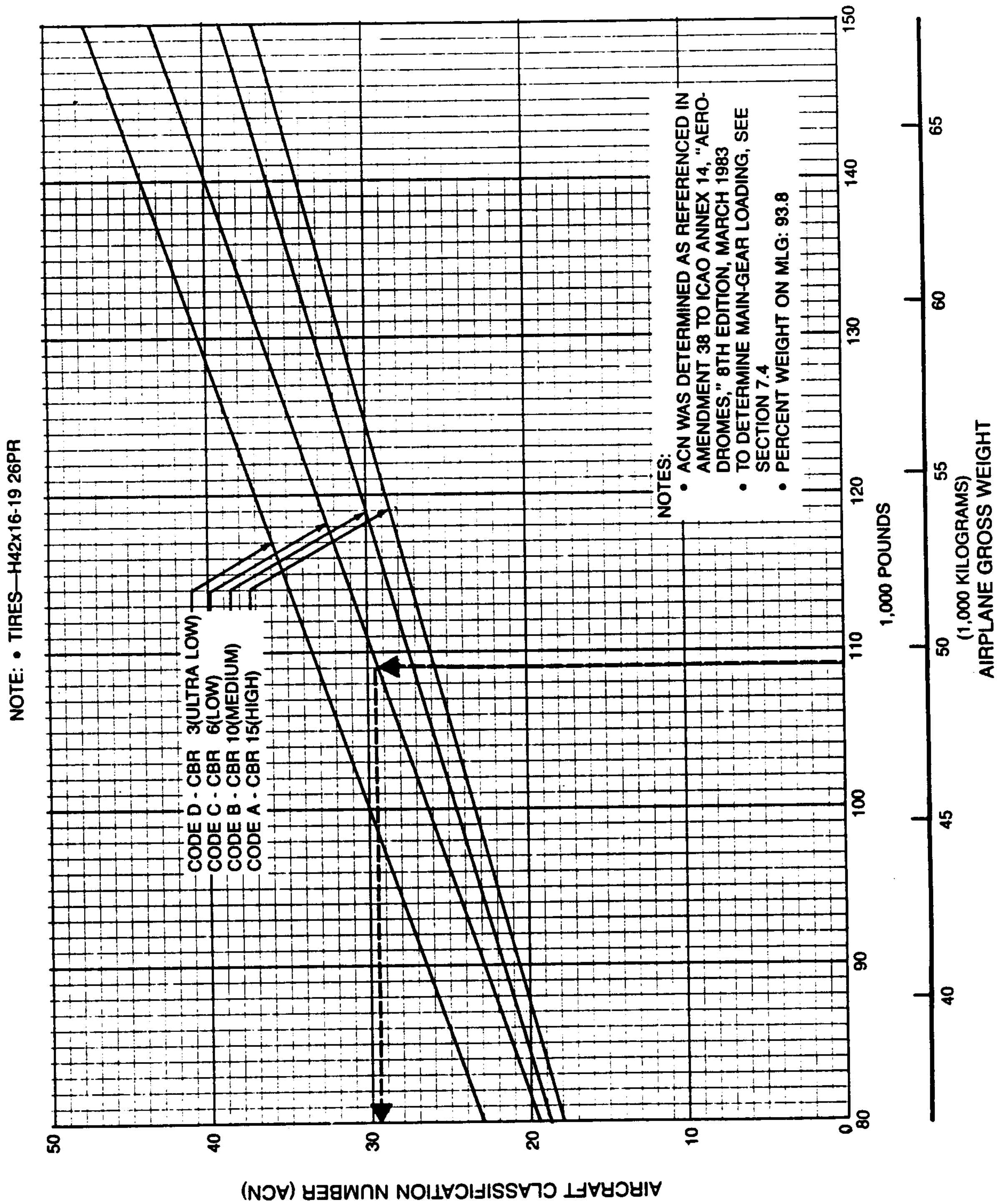
Note: An aircraft with an ACN equal to or less than the reported PCN can operate on the pavement subject to any limitations on the tire pressure. (ref.: Amendment 35 to ICAO Annex 14 Aerodromes, 8th edition, March 1983.)



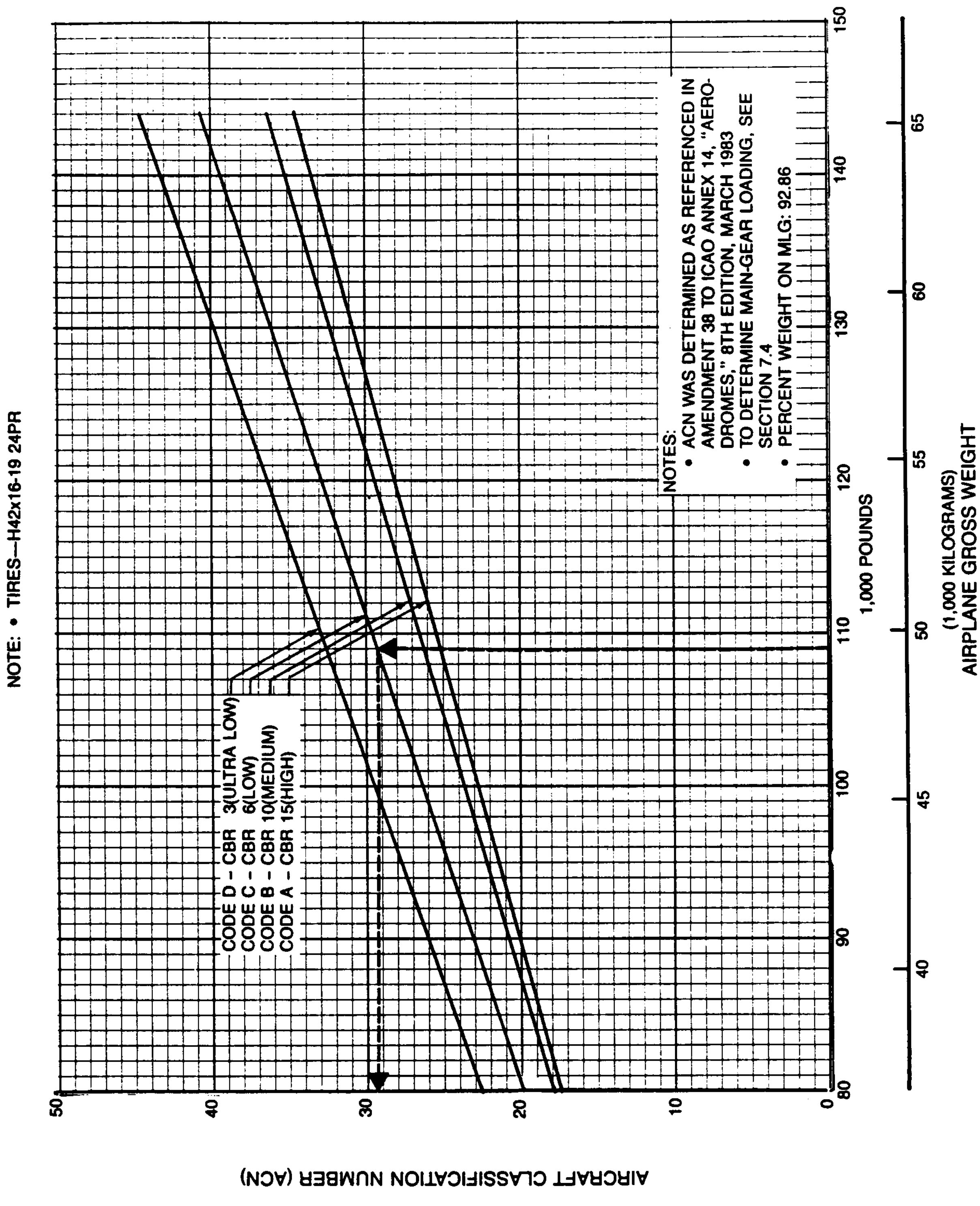
7.10.1 AIRCRAFT CLASSIFICATION NUMBER—FLEXIBLE PAVEMENT
MODEL 737-300



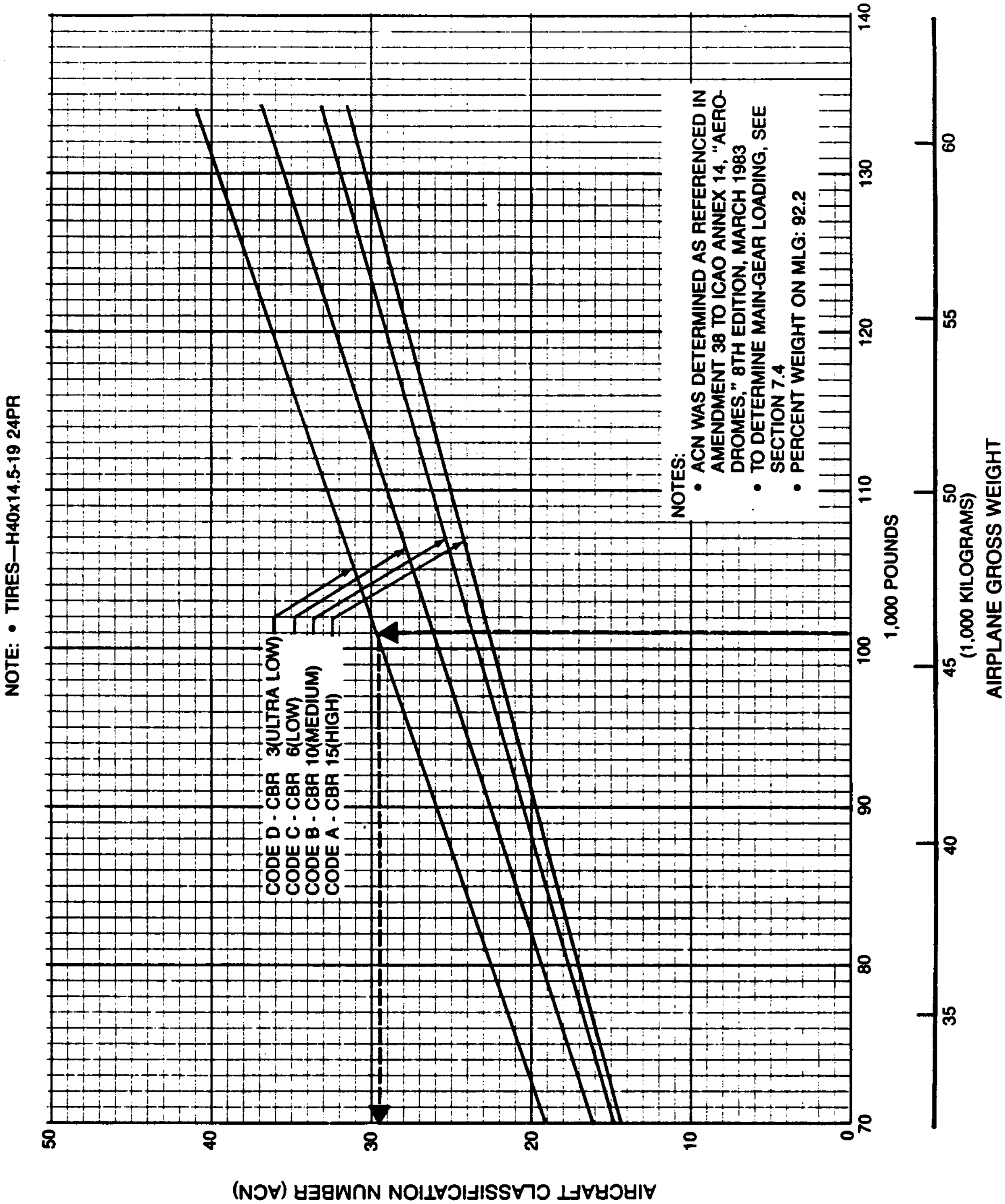
7.10.2 AIRCRAFT CLASSIFICATION NUMBER—FLEXIBLE PAVEMENT
MODEL 737-300 (LOW PRESSURE TIRES)



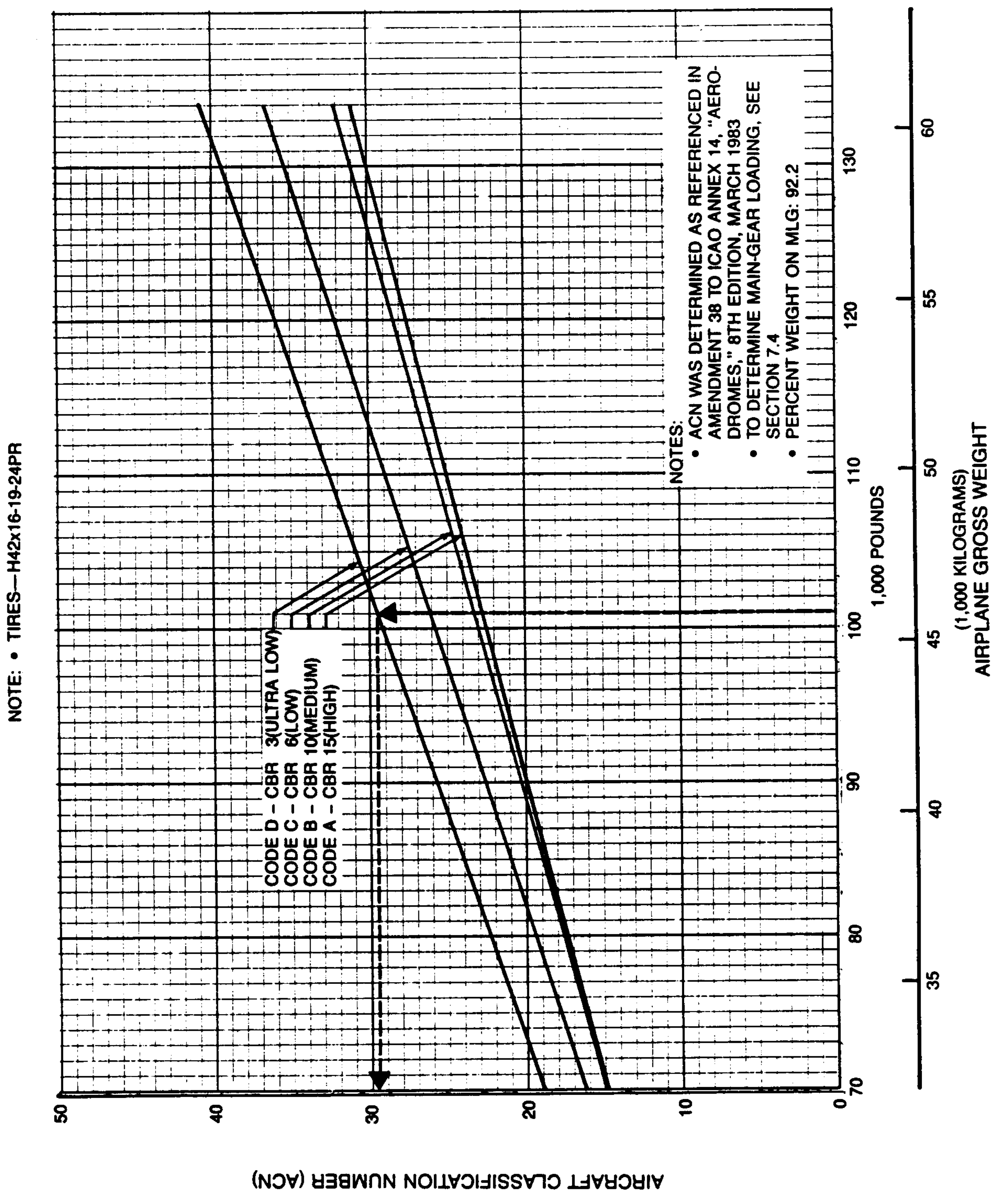
7.10.3 AIRCRAFT CLASSIFICATION NUMBER—FLEXIBLE PAVEMENT
MODEL 737-400



7.10.4 AIRCRAFT CLASSIFICATION NUMBER—FLEXIBLE PAVEMENT
MODEL 737-400 (LOW PRESSURE TIRES)

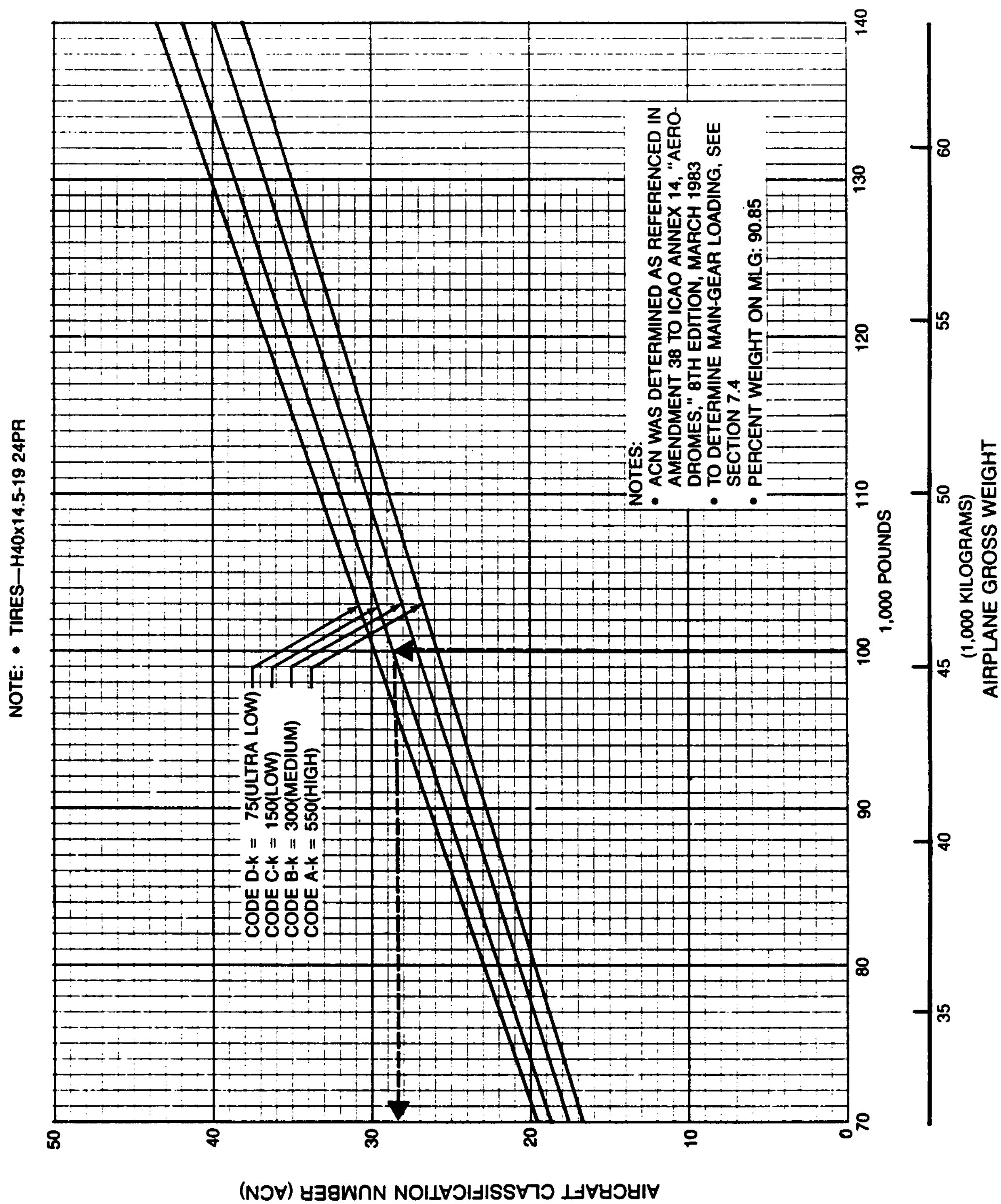


7.10.5 AIRCRAFT CLASSIFICATION NUMBER—FLEXIBLE PAVEMENT
MODEL 737-500

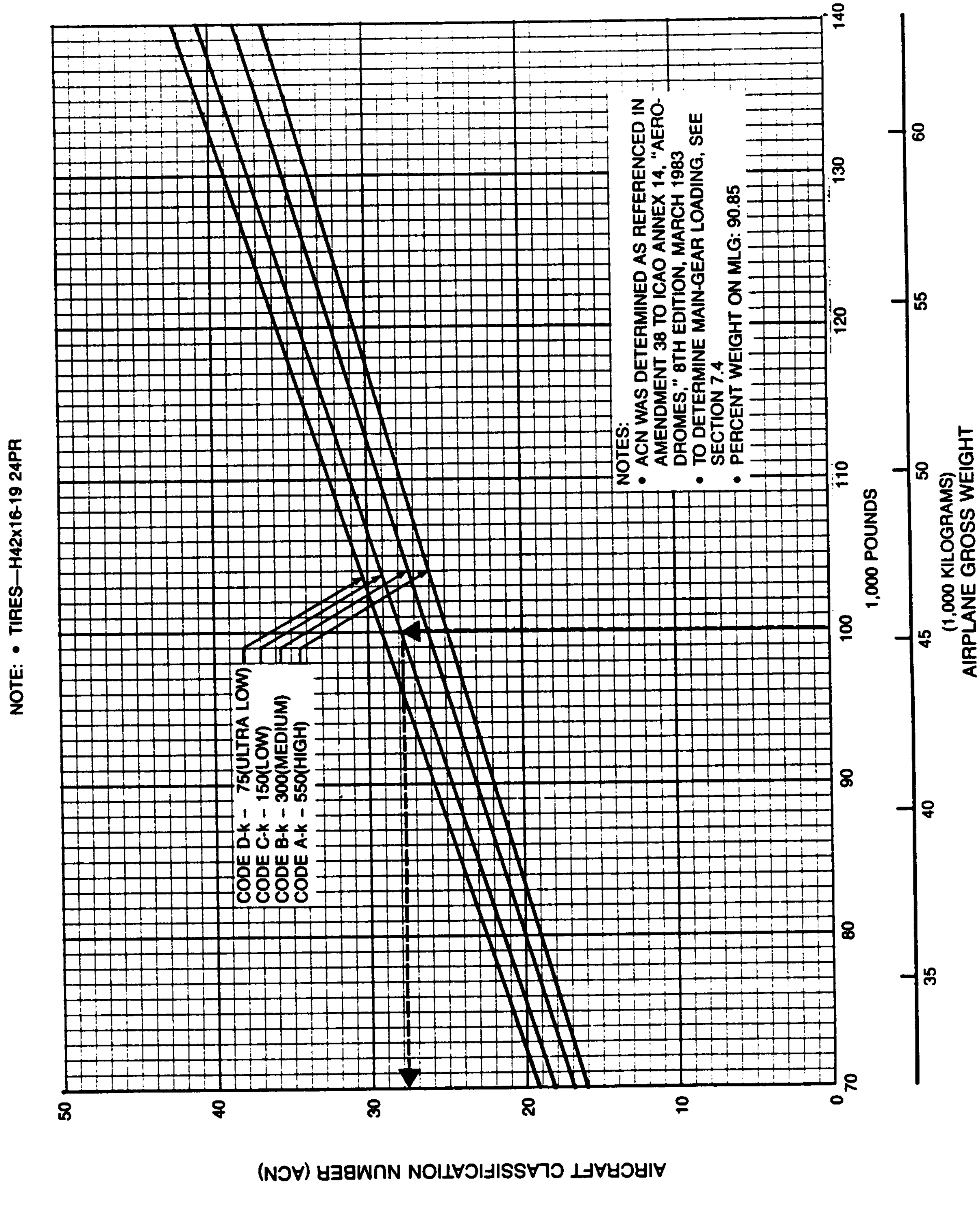


7.10.6 AIRCRAFT CLASSIFICATION NUMBER—FLEXIBLE PAVEMENT

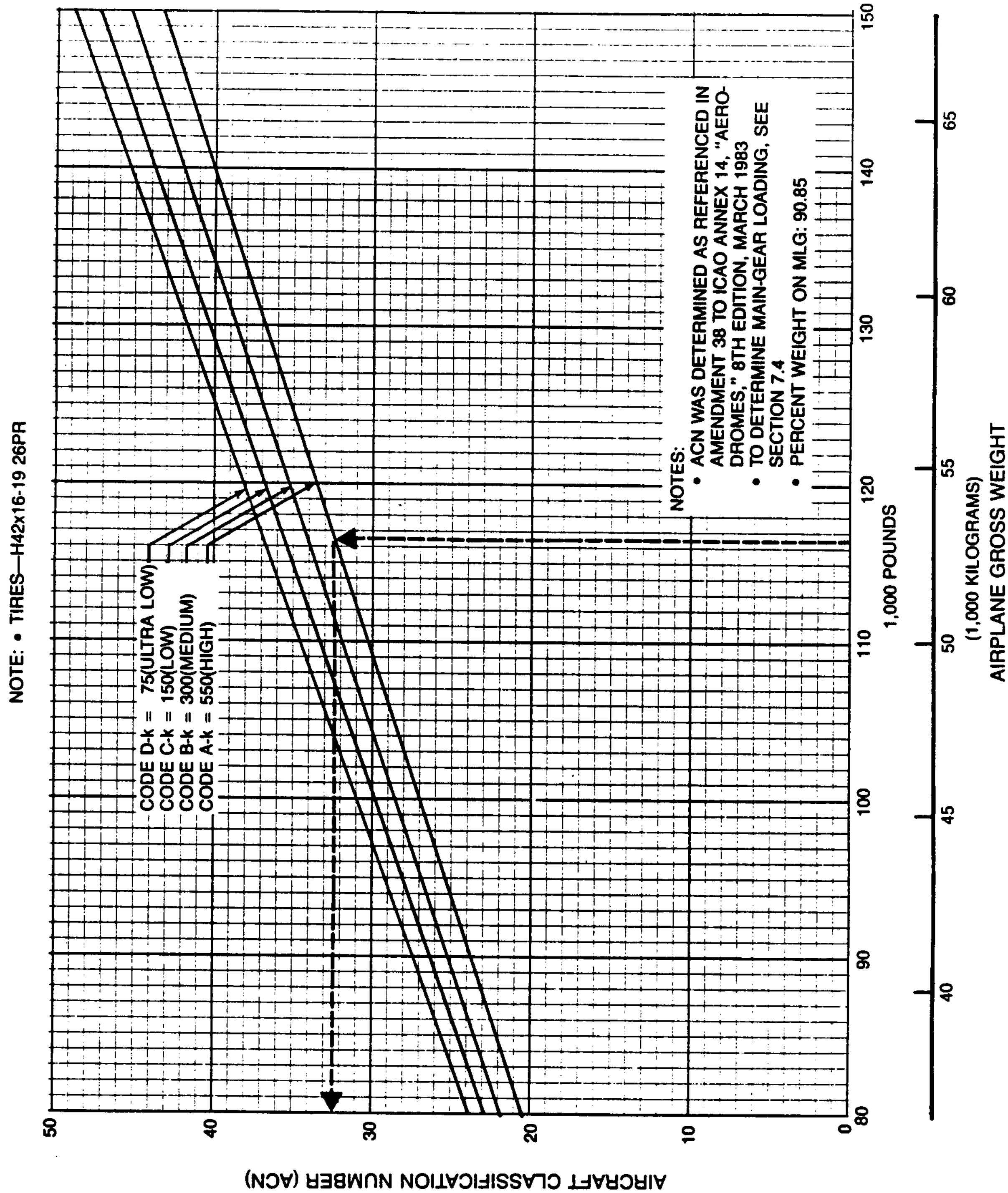
MODEL 737-500 (LOW PRESSURE TIRES)



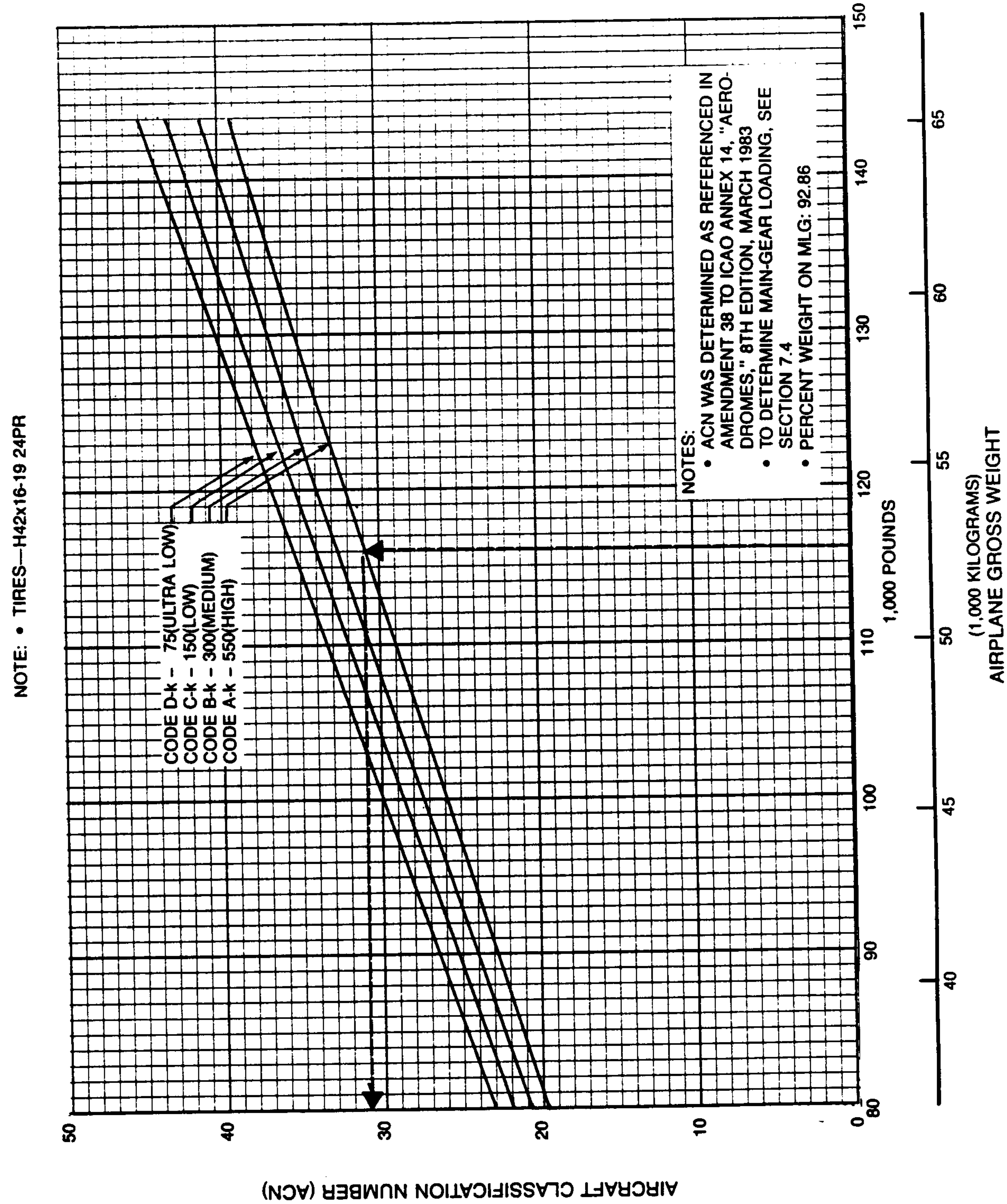
7.10.7 AIRCRAFT CLASSIFICATION NUMBER—RIGID PAVEMENT
MODEL 737-300



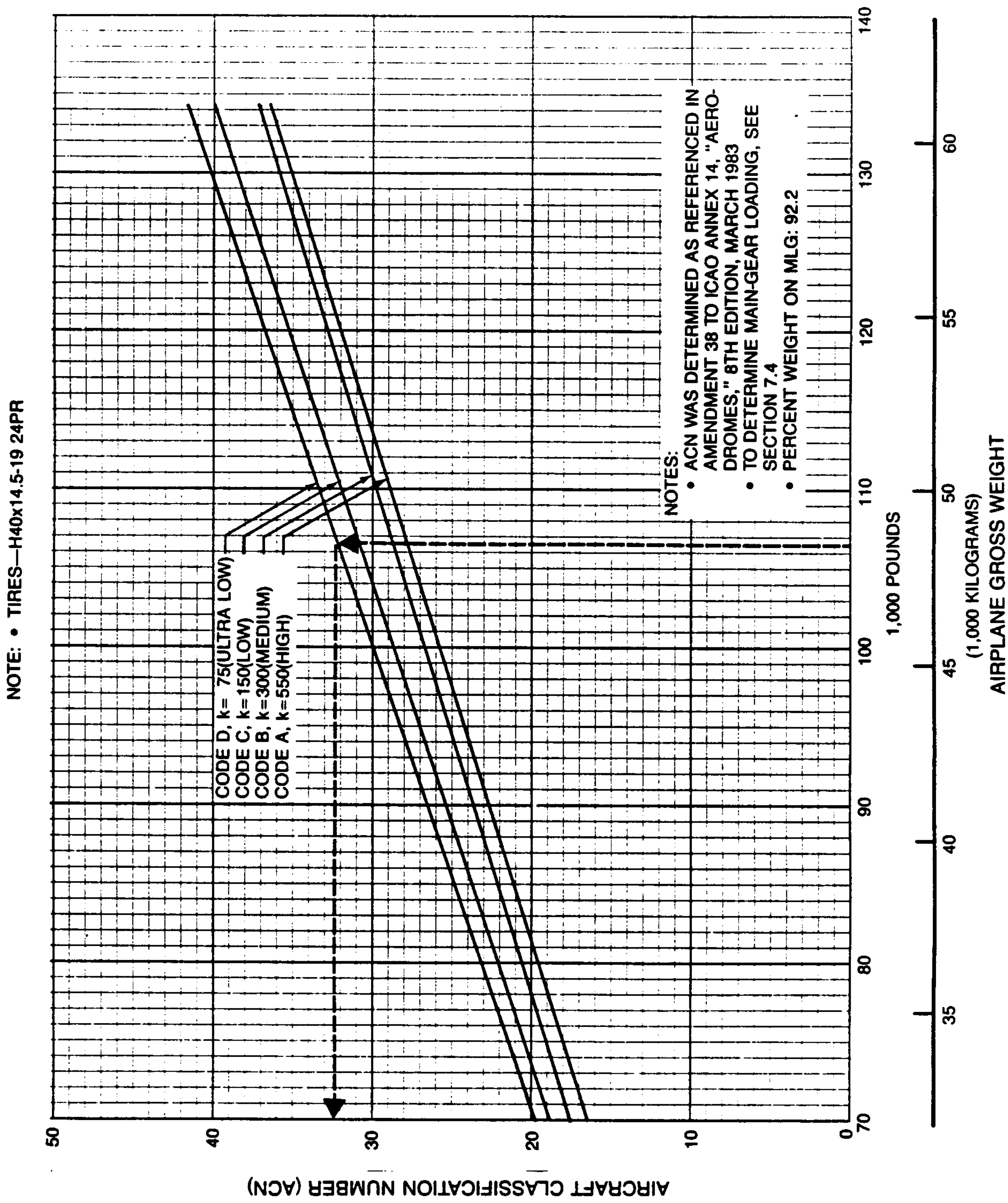
7.10.8 AIRCRAFT CLASSIFICATION NUMBER—RIGID PAVEMENT
MODEL 737-300 (LOW PRESSURE TIRES)



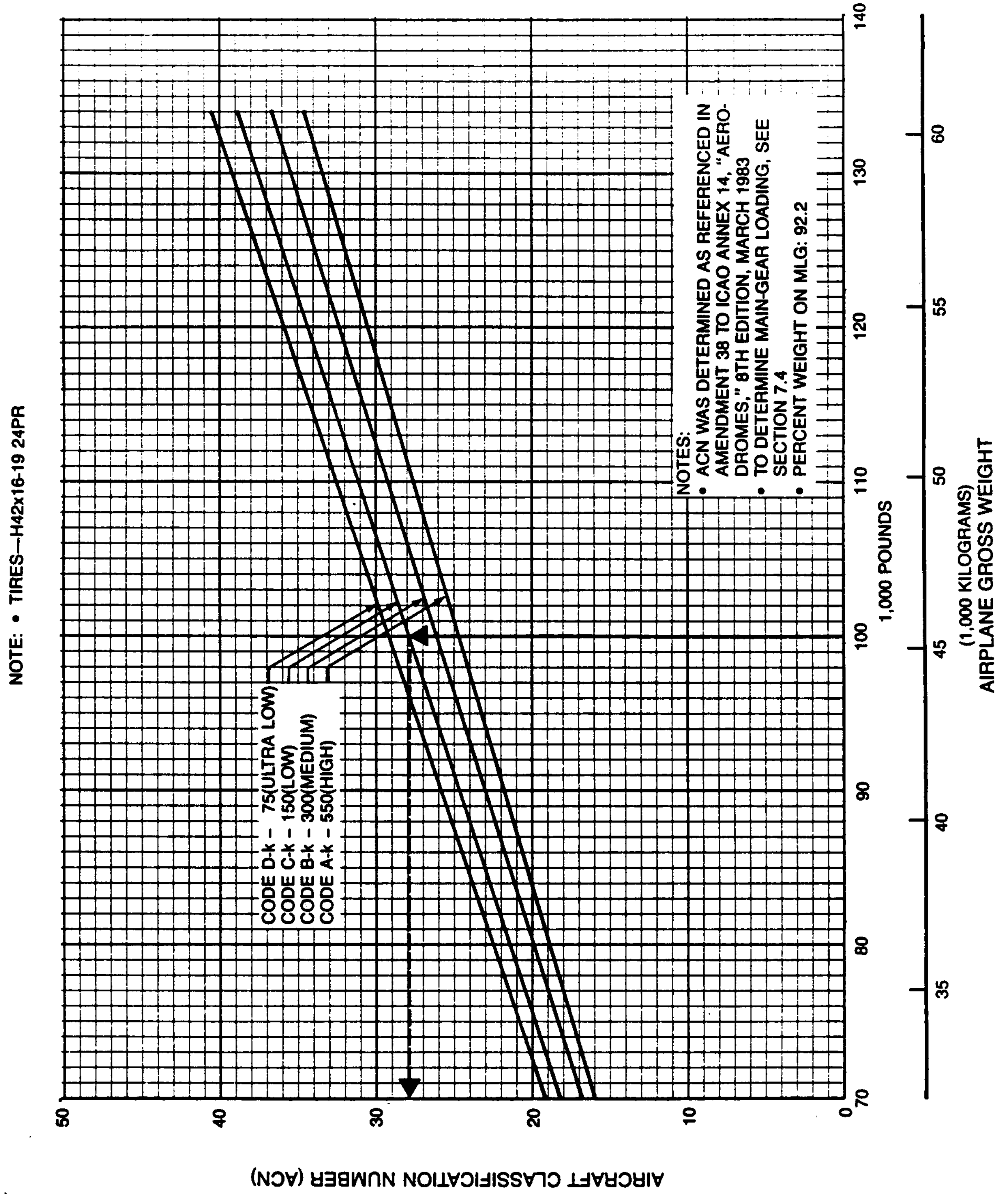
7.10.9 AIRCRAFT CLASSIFICATION NUMBER—RIGID PAVEMENT
MODEL 737-400



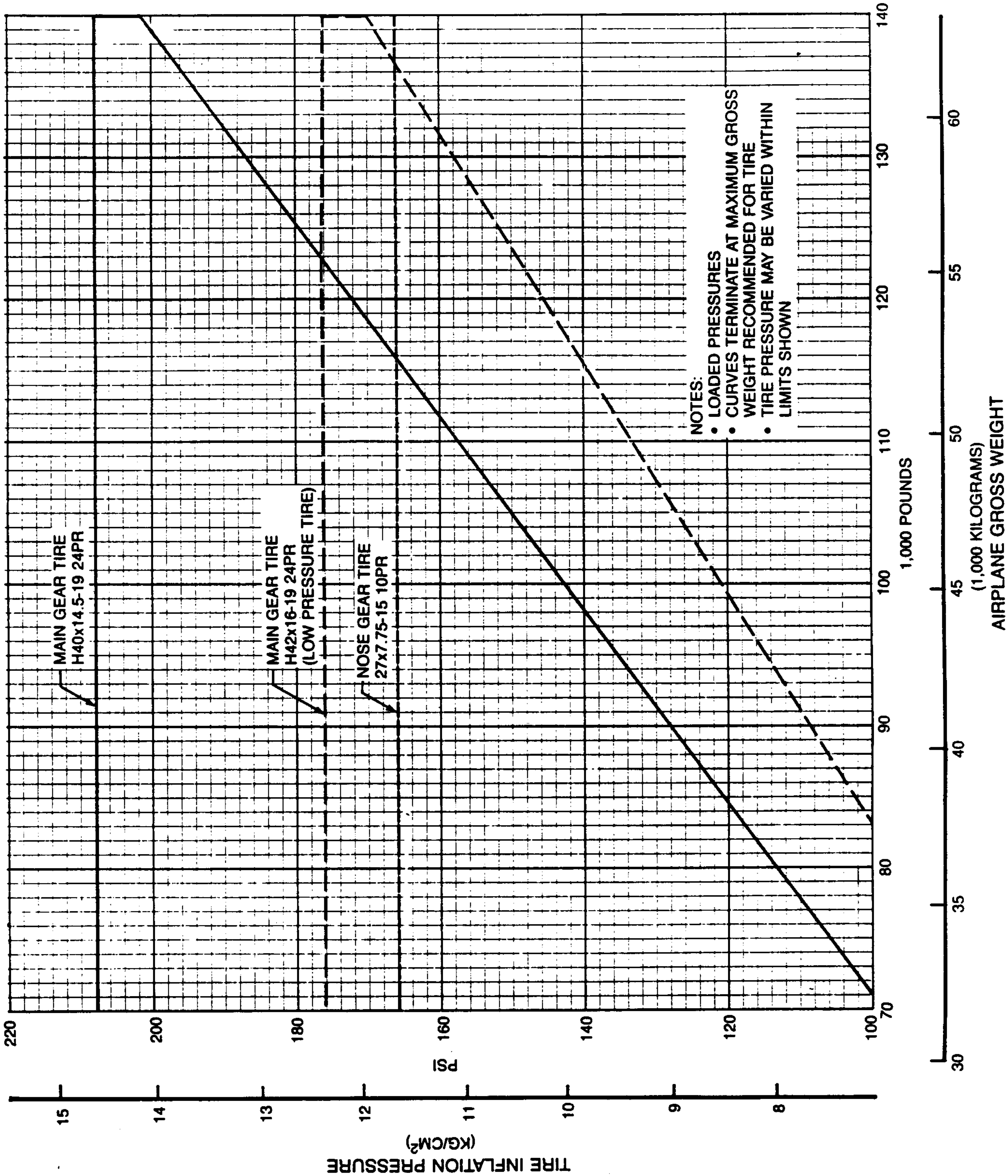
7.10.10 AIRCRAFT CLASSIFICATION NUMBER—RIGID PAVEMENT
MODEL 737-400 (LOW PRESSURE TIRES)



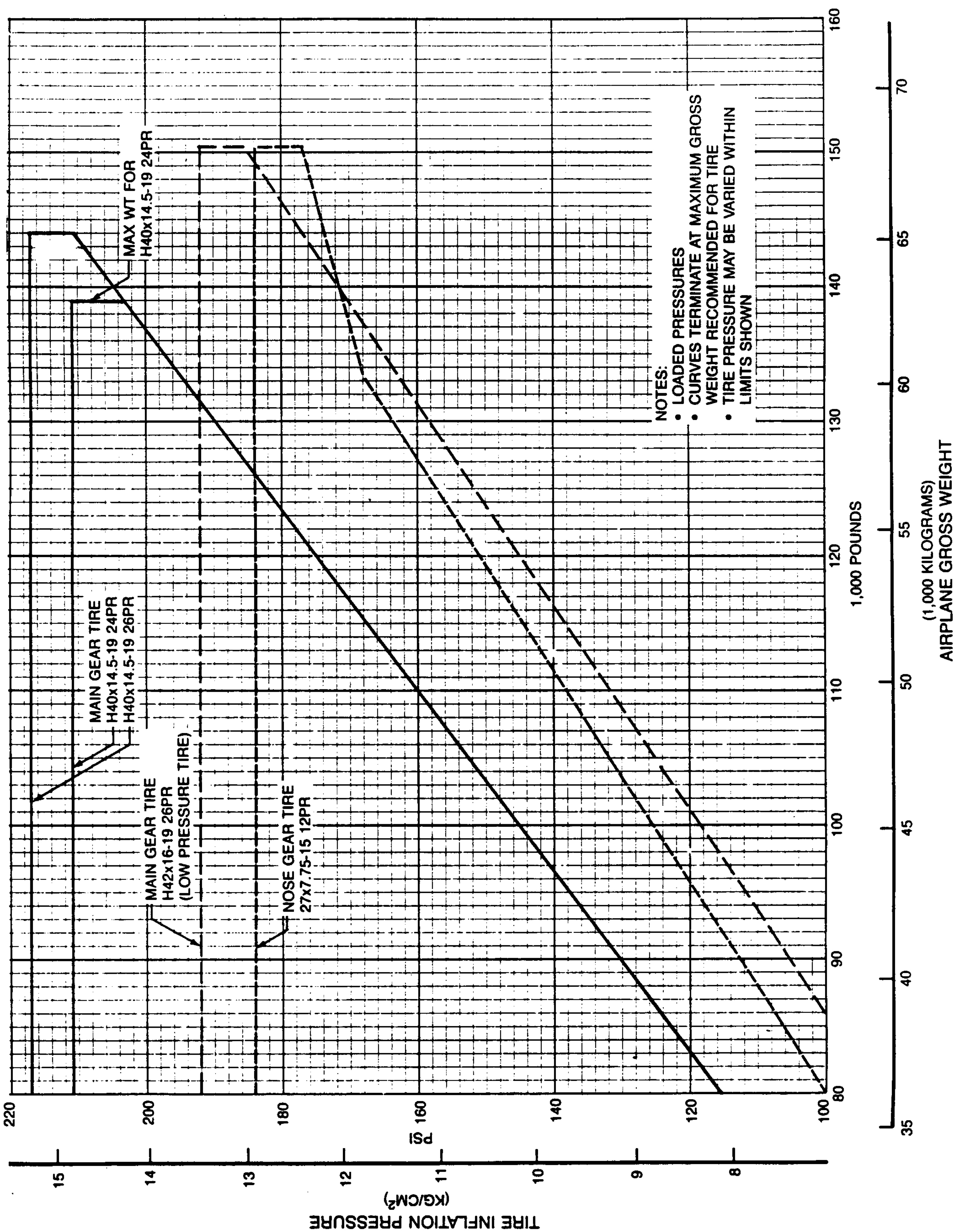
7.10.11 AIRCRAFT CLASSIFICATION NUMBER—RIGID PAVEMENT
MODEL 737-500



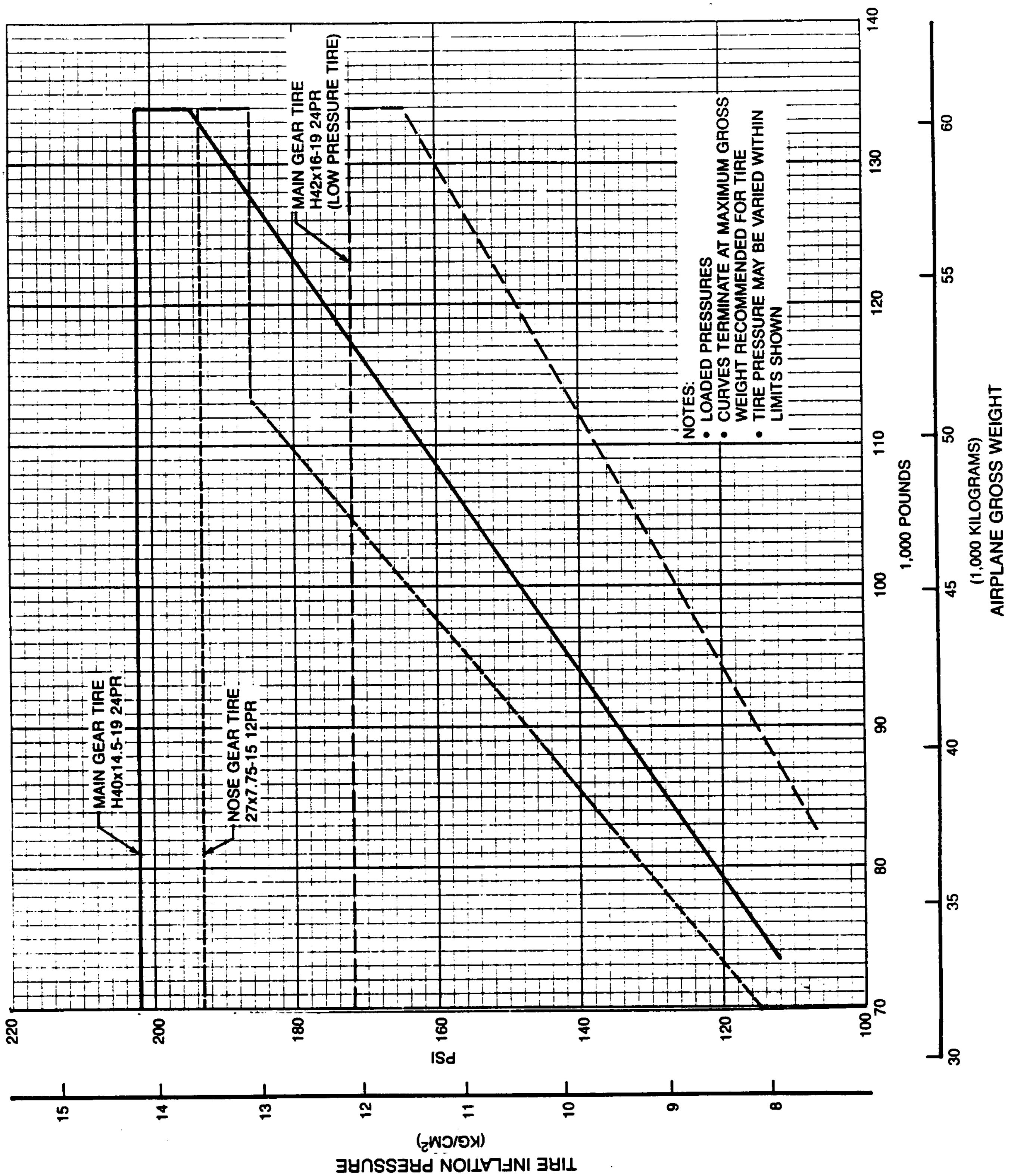
7.10.12 AIRCRAFT CLASSIFICATION NUMBER—RIGID PAVEMENT
MODEL 737-500 (LOW PRESSURE TIRES)



7.11.1 TIRE INFLATION CHART
MODEL 737-300



7.11.2 TIRE INFLATION CHART
MODEL 737-400



7.11.3 TIRE INFLATION CHART

MODEL 737-500

8.0 FUTURE 737-DERIVATIVE AIRPLANES

8.0 FUTURE 737-DERIVATIVE AIRPLANES

Development of these derivatives will depend on airline requirements. The impact of airline requirements on airport facilities will be a consideration in the configuration and design of derivatives.

9.0 SCALED 737 DRAWINGS

9.1 through 9.5 737-300
9.6 through 9.10 737-400
9.11 through 9.15 737-500

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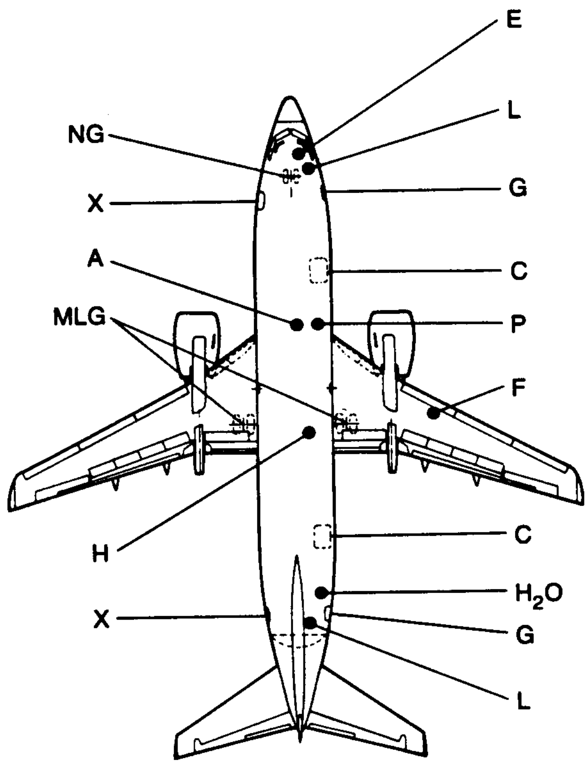

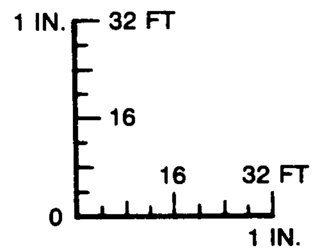

LEGEND

A	AIR CONDITIONING
C	CARGO DOOR
E	ELECTRICAL
F	FUEL
G	SERVICE DOOR
H	HYDRAULIC CONNECTION
H_2O	POTABLE WATER
L	LAVATORY
MLG	MAIN-LANDING GEAR
NG	NOSE GEAR
P	PNEUMATIC (AIR START)
X	PASSENGER DOOR

NOTE: FOR TURNING RADIUS DATA, SEE SECTIONS 4.2 AND 4.3.

9.1 SCALED DRAWING—1 INCH = 32 FEET
MODEL 737-300

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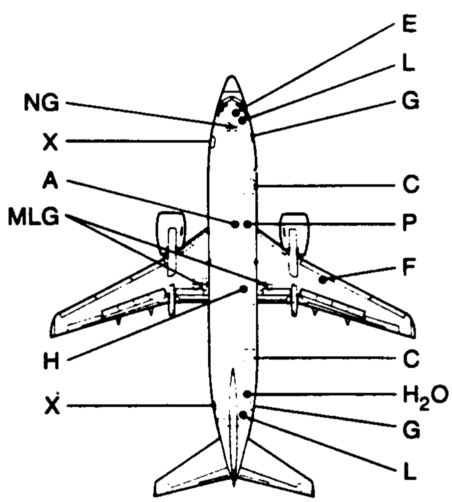

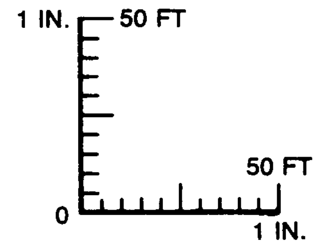

LEGEND

A	AIR CONDITIONING
C	CARGO DOOR
E	ELECTRICAL
F	FUEL
G	SERVICE DOOR
H	HYDRAULIC CONNECTION
H_2O	POTABLE WATER
L	LAVATORY
MLG	MAIN-LANDING GEAR
NG	NOSE GEAR
P	PNEUMATIC (AIR START)
X	PASSENGER DOOR

NOTE: FOR TURNING RADIUS DATA, SEE SECTIONS 4.2 AND 4.3.

9.2 SCALED DRAWING—1 INCH = 50 FEET
MODEL 737-300

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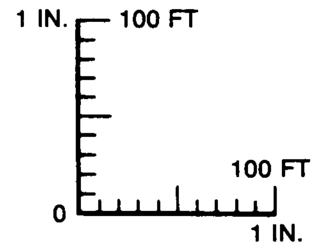

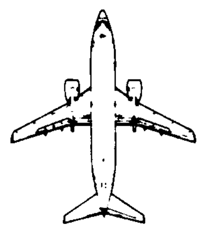

NOTES: SEE OTHER PAGES IN THIS SECTION FOR SERVICE POINT LOCATIONS.

FOR TURNING RADIUS DATA SECTIONS 4.2 AND 4.3

9.3 SCALED DRAWING—1 INCH = 100 FEET
MODEL 737-300

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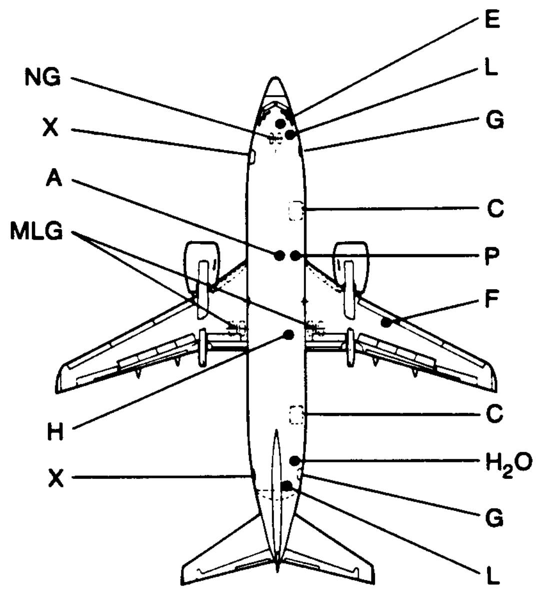

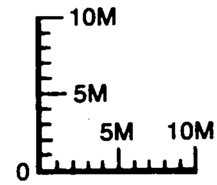

LEGEND

A	AIR CONDITIONING
C	CARGO DOOR
E	ELECTRICAL
F	FUEL
G	SERVICE DOOR
H	HYDRAULIC CONNECTION
H_2O	POTABLE WATER
L	LAVATORY
MLG	MAIN-LANDING GEAR
NG	NOSE GEAR
P	PNEUMATIC (AIR START)
X	PASSENGER DOOR

NOTE: FOR TURNING RADIUS DATA, SEE SECTIONS 4.2 AND 4.3.

9.4 SCALED DRAWING—1:500
MODEL 737-300

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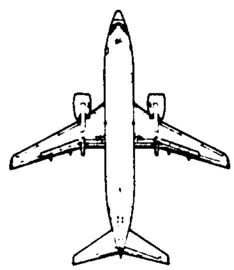

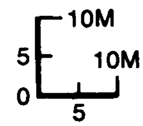

NOTES: SEE OTHER PAGES IN THIS SECTION FOR SERVICE POINT LOCATIONS.

FOR TURNING RADIUS DATA SECTIONS 4.2 AND 4.3

9.5 SCALED DRAWING—1:1,000
MODEL 737-300

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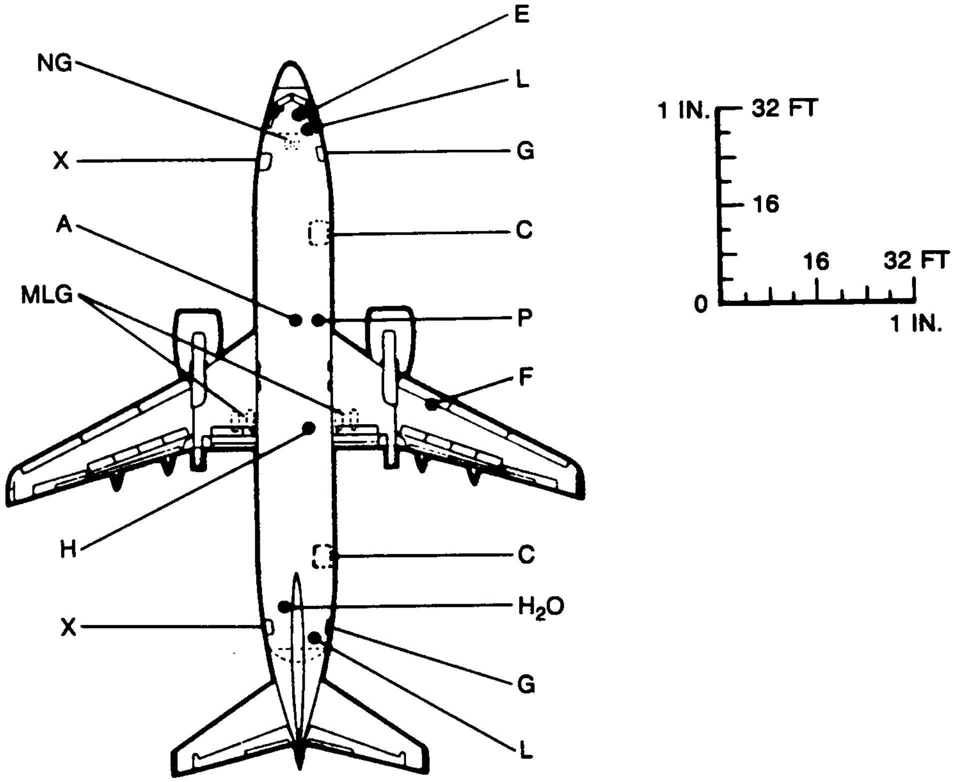

<u>LEGEND</u>

A	AIR CONDITIONING
C	CARGO DOOR
E	ELECTRICAL
F	FUEL
G	SERVICE DOOR
H	HYDRAULIC CONNECTION
H_2O	POTABLE WATER
L	LAVATORY
MLG	MAIN-LANDING GEAR
NG	NOSE GEAR
P	PNEUMATIC (AIR START)
X	PASSENGER DOOR

NOTE: FOR TURNING RADIUS DATA, SEE SECTIONS 4.2 AND 4.3.

9.6 SCALED DRAWING—1 INCH = 32 FEET
MODEL 737-400

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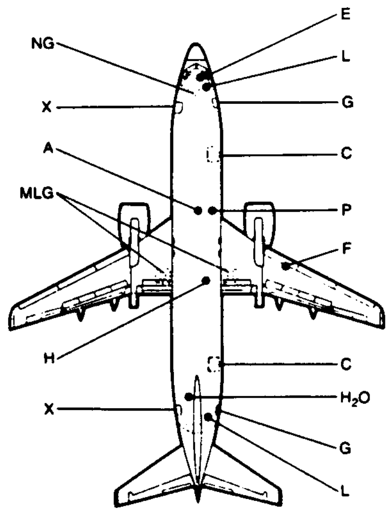

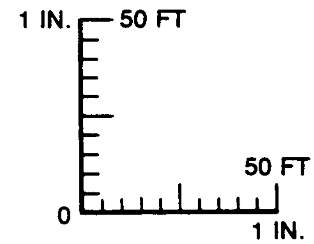

LEGEND

A	AIR CONDITIONING
C	CARGO DOOR
E	ELECTRICAL
F	FUEL
G	SERVICE DOOR
H	HYDRAULIC CONNECTION
H_2O	POTABLE WATER
L	LAVATORY
MLG	MAIN-LANDING GEAR
NG	NOSE GEAR
P	PNEUMATIC (AIR START)
X	PASSENGER DOOR

NOTE: FOR TURNING RADIUS DATA, SEE SECTIONS 4.2 AND 4.3.

9.7 SCALED DRAWING—1 INCH = 50 FEET
MODEL 737-400

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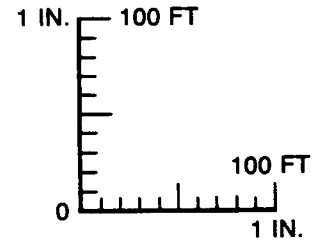

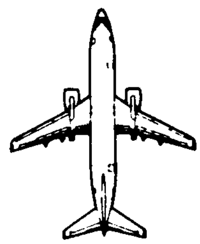

NOTES: SEE OTHER PAGES IN THIS SECTION FOR SERVICE POINT LOCATIONS.

FOR TURNING RADIUS DATA SECTIONS 4.2 AND 4.3

9.8 SCALED DRAWING—1 INCH = 100 FEET
MODEL 737-400

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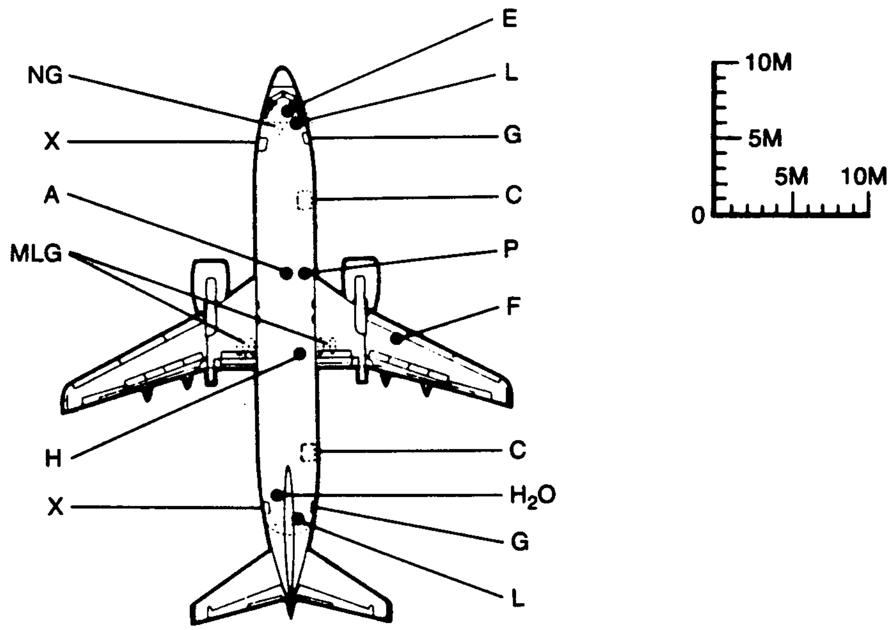

LEGEND

A	AIR CONDITIONING
C	CARGO DOOR
E	ELECTRICAL
F	FUEL
G	SERVICE DOOR
H	HYDRAULIC CONNECTION
H_2O	POTABLE WATER
L	LAVATORY
MLG	MAIN-LANDING GEAR
NG	NOSE GEAR
P	PNEUMATIC (AIR START)
X	PASSENGER DOOR

NOTE: FOR TURNING RADIUS DATA, SEE SECTIONS 4.2 AND 4.3.

9.9 SCALED DRAWING—1:500
MODEL 737-400

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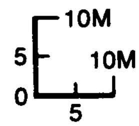

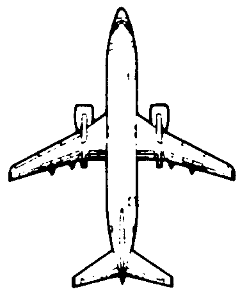

NOTES: SEE OTHER PAGES IN THIS SECTION FOR SERVICE POINT LOCATIONS.

FOR TURNING RADIUS DATA SECTIONS 4.2 AND 4.3

9.10 SCALED DRAWING—1:1,000
MODEL 737-400

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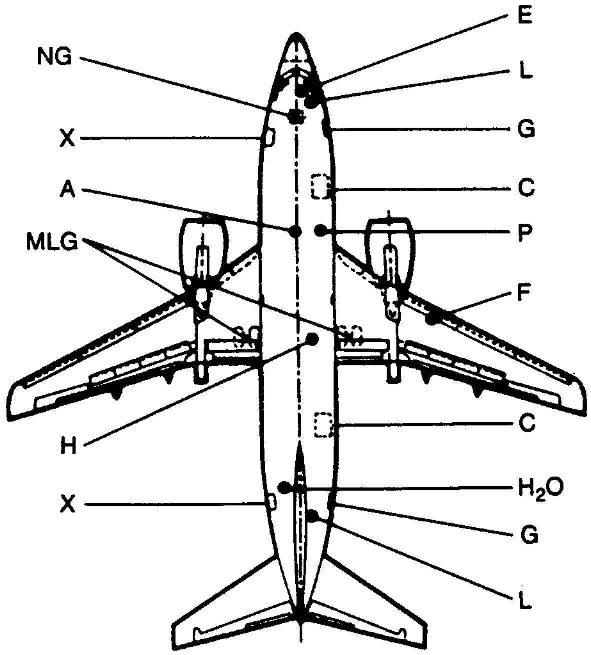

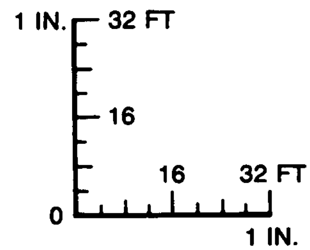

LEGEND

A	AIR CONDITIONING
C	CARGO DOOR
E	ELECTRICAL
F	FUEL
G	SERVICE DOOR
H	HYDRAULIC CONNECTION
H_2O	POTABLE WATER
L	LAVATORY
MLG	MAIN-LANDING GEAR
NG	NOSE GEAR
P	PNEUMATIC (AIR START)
X	PASSENGER DOOR

NOTE: FOR TURNING RADIUS DATA, SEE SECTIONS 4.2 AND 4.3.

9.11 SCALED DRAWING—1 INCH = 32 FEET
MODEL 737-500

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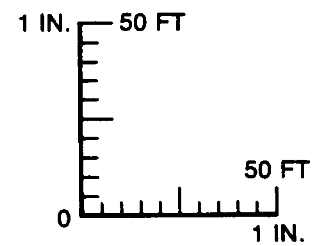

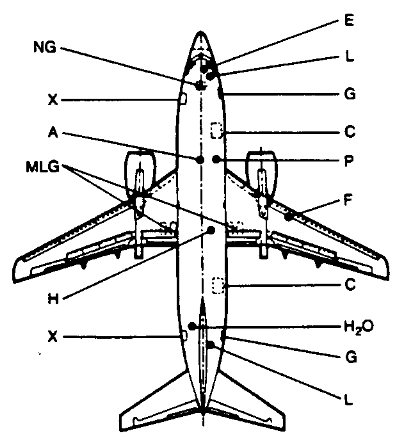

LEGEND

A	AIR CONDITIONING
C	CARGO DOOR
E	ELECTRICAL
F	FUEL
G	SERVICE DOOR
H	HYDRAULIC CONNECTION
H_2O	POTABLE WATER
L	LAVATORY
MLG	MAIN-LANDING GEAR
NG	NOSE GEAR
P	PNEUMATIC (AIR START)
X	PASSENGER DOOR

NOTE: FOR TURNING RADIUS DATA, SEE SECTIONS 4.2 AND 4.3.

9.12 SCALED DRAWING—1 INCH = 50 FEET
MODEL 737-500

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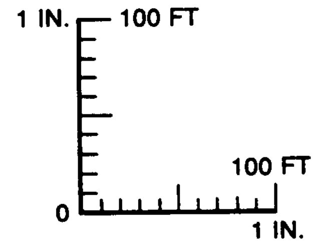

NOTES: SEE OTHER PAGES IN THIS SECTION FOR SERVICE POINT LOCATIONS.

FOR TURNING RADIUS DATA SECTIONS 4.2 AND 4.3

9.13 SCALED DRAWING—1 INCH = 100 FEET
MODEL 737-500

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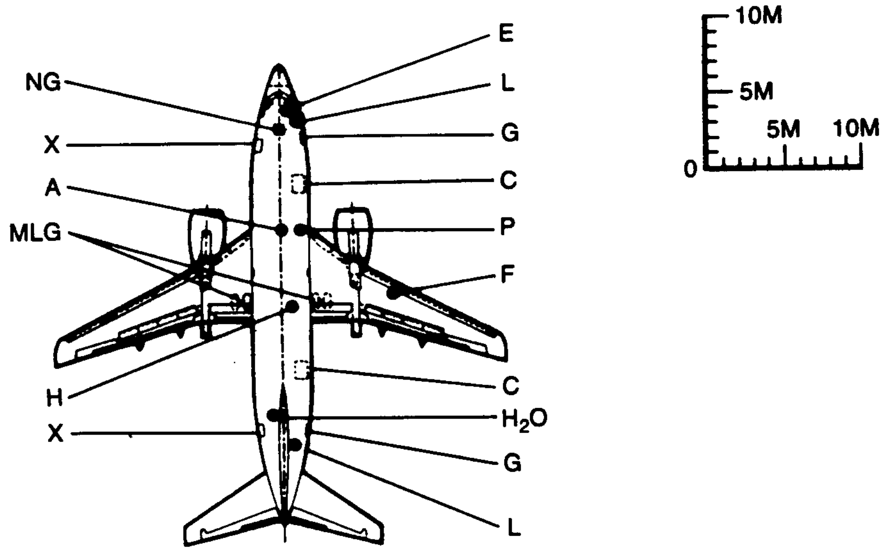

LEGEND

A	AIR CONDITIONING
C	CARGO DOOR
E	ELECTRICAL
F	FUEL
G	SERVICE DOOR
H	HYDRAULIC CONNECTION
H_2O	POTABLE WATER
L	LAVATORY
MLG	MAIN-LANDING GEAR
NG	NOSE GEAR
P	PNEUMATIC (AIR START)
X	PASSENGER DOOR

NOTE: FOR TURNING RADIUS DATA, SEE SECTIONS 4.2 AND 4.3.

9.14 SCALED DRAWING—1:500
MODEL 737-500

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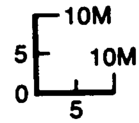

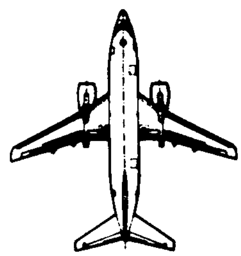

NOTES: SEE OTHER PAGES IN THIS SECTION FOR SERVICE POINT LOCATIONS.

FOR TURNING RADIUS DATA SECTIONS 4.2 AND 4.3

9.15 SCALED DRAWING—1:1,000

MODEL 737-500

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